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USAID/ZIMBABWE

FOREIGN ASSISTANCE ACT SECTIONS 118/119 TROPICAL FORESTS AND BIODIVERSITY ANALYSIS

JULY 2021

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USAID/ZIMBABWE

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ACRONYMS

CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CDCS	Country Development Cooperation Strategy
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DG	Democracy and Governance
DO	Development Objective
EG	Economic Growth
EMA	Environmental Management Agency
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization of the United Nations
FAW	Fall Arm Worm
GDP	Gross Domestic Product
GFW	Global Forest Watch
GIS	Geographic Information System
GOZ	Government of Zimbabwe
GRBI	Genetic Resources and Biotechnology Institute
HAR	Humanitarian Assistance and Resilience
HPN	Health, Population, and Nutrition
HWC	Human-wildlife conflict
IBA	Important Bird Area
IRs	Intermediate Results
IUCN	International Union for Conservation of Nature
KAZA	Kavango–Zambezi
MAB	Man and the Biosphere Strategy
NGO	Non-governmental organization
NRM	Natural Resource Management
NTFP	Non-Timber Forest Products
TFCA	TransFrontier Conservation Area
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
ZimParks	Zimbabwe Parks and Wildlife Management Authority

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EXECUTIVE SUMMARY

INTRODUCTION

This Executive Summary presents key findings for the United States Agency for International Development (USAID) Zimbabwe Foreign Assistance Act (FAA) Sections 118/119 Tropical Forests and Biodiversity Analysis (Analysis) and accomplishes the following:

- Highlights the status of tropical forests and biodiversity throughout Zimbabwe;
- Identifies primary threats and underlying drivers of those threats to tropical forests and biodiversity;
- Provides recommendations to better integrate tropical forests and biodiversity conservation into the new country strategy.

The Analysis informs development of the USAID/Zimbabwe Country Development Cooperation Strategy (CDCS), which will frame USAID foreign assistance programming in Zimbabwe for the period 2021 – 2026. The Analysis considers tropical forests and biodiversity issues across the entire country.

STATUS OF TROPICAL FORESTS AND BIODIVERSITY

Zimbabwe is rich in biodiversity – with important populations of elephants, rhinos, and other large mammals, and it is well known for a legacy of conservation. With an estimated 100,000 elephants, Zimbabwe has the second biggest elephant population in Africa. However, changes precipitated by land reform in the early 2000s and decades of political instability have led to losses of tropical forests and species. The deforestation rate over that time (2001 – 2020) is approximately 3.2%. The protected areas network, which covers approximately over 27% of the country, remains a lynchpin of ongoing conservation efforts – with vastly lower rates of deforestation in these areas. Recent pressures, including climate change and associated droughts, have contributed to degraded conditions for species and their habitats.

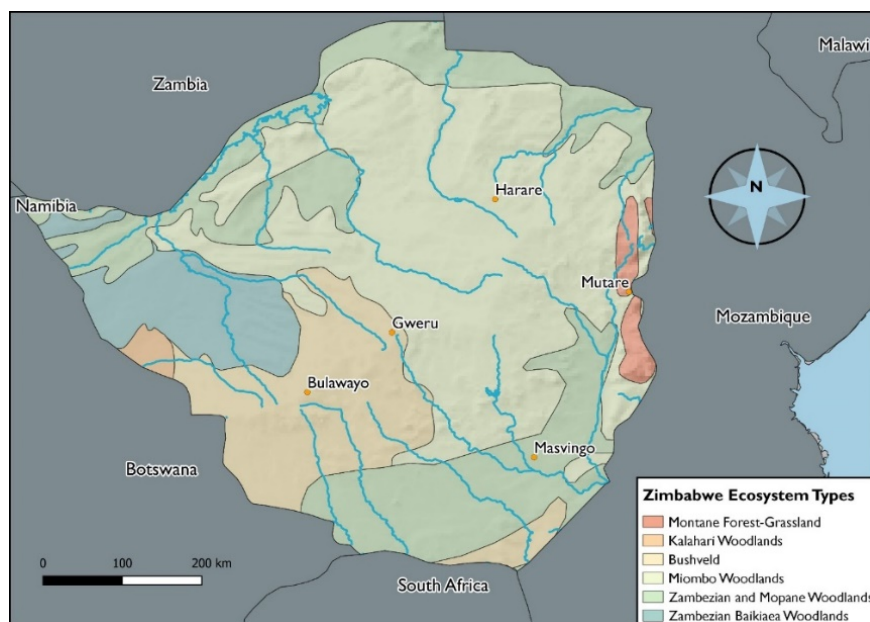


Figure ES I. Zimbabwe Ecosystem Types

THREATS TO BIODIVERSITY

Direct threats to biodiversity in Zimbabwe are summarized below (see Section 5 for a more comprehensive description of threats).

Unsustainable Agricultural Practices and Expansion: Although agriculture is a significant activity for Zimbabwe's economy, livelihoods, and food security, its rapid expansion poses a significant threat to Zimbabwe's forests and biodiversity. Contract monoculture (e.g., cotton, tobacco, sugar cane), animal husbandry, and small-holder farms make up the majority of agricultural production. Of Zimbabwe's 38.7 million ha of total land area, approximately 16.2 million ha, or 41.8%, was used for agricultural purposes in 2018 (including cropland and rangeland). From 1990 to 2018, agricultural land in Zimbabwe increased from 13 million ha to 16.2 million ha, peaking at approximately 16.5 million ha in 2008. Agricultural expansion and associated forest loss have led to human-wildlife conflict (HWC), which has risen dramatically in the past 5 – 10 years. Overall, the expansion of agriculture has caused widespread forest loss and exacerbated issues of water availability, fragmentation of wildlife habitats, HWC, and land degradation.

Mining and Other Extractive Industries: Large and artisanal-scale mining contribute significantly to biodiversity loss in Zimbabwe. Mining projects are undertaken with limited or insufficient application of environmental and social safeguards, and in some cases are advanced in areas of high biodiversity value. Large-scale commercial mining has included Chinese interests mining for coal in national parks. Many artisanal miners operate in abandoned or closed commercial gold mines, and the sector is largely informal and poorly regulated. Environmental impacts with implications for biodiversity include deforestation, over-stripping of overburden, burning of onsite vegetation, siltation and leaching of harmful chemicals (e.g., mercury) into rivers.

Overharvesting of Wood: Wood harvesting in Zimbabwe is driven by three primary sources of demand: fuelwood harvesting for domestic use, fuelwood harvesting for drying and curing tobacco, and timber harvesting for sale to international markets. Approximately 330,000 ha of forests are cleared annually, with only 15.6 million ha of forests remaining in Zimbabwe. Fuelwood gathering for urban areas often includes cutting of entire stands in a specific area to reduce transport costs. In addition, 1.4 million tons of firewood are gathered annually for tobacco curing. The illegal timber trade is another pervasive threat to forests in Zimbabwe. Zimbabwe's remaining fourteen protected indigenous forests, which cover 700,000 ha, are often the target of illegal logging.

Anthropogenic Fires: Veld fires (also known as wildfires) are common in Zimbabwe's predominantly savanna-woodland ecosystems and are often caused by accidental or deliberate human actions. The most prevalent human actions tied to veld fires are for hunting, improving grazing, burning to reduce the fuel load, creation of fire breaks, arson, and smoking out bees during honey harvesting. Farmers with limited machinery or resources to prepare land may set fires, which often spread beyond the area of intended burn.

Wildlife Crime: Poaching and trafficking in megafauna (e.g., elephants and rhinos) and species of concern (e.g., pangolins) is largely carried out by international syndicates driven by international demand for animal products. Chinese and Vietnamese markets have historically driven the highest demand for illicit goods. Some poaching syndicates have reportedly moved from East Africa to Southern Africa as anti-poaching efforts in Kenya and Tanzania are increasingly successful in enforcement efforts. Increased

jail time, higher fines, and increased capacity of wildlife authorities and conservation NGOs may have also reduced wildlife crime in Zimbabwe in the last decade, however, oversight and enforcement capacity within the Government of Zimbabwe is still under-resourced.

Bushmeat Hunting: Bushmeat hunting in Zimbabwe is primarily driven by the need for income generation, food insecurity, and lack of readily available forms of protein. Bushmeat hunting spiked in the wake of the resettlement program in the 2000s; illegal hunting on resettled land led to the near eradication of many animal populations and sharp declines on land adjacent to resettled areas. The sable antelope are particularly affected by hunting with dogs as they tend to stand to fight rather than run away, making them more vulnerable to hunters with bow and arrows. Bushmeat is often hunted for cash and sold domestically in local population centers, especially in the Southeast Lowveld. In Savé Valley Conservancy, illegal hunting caused the loss of at least US\$1.1 million/year of revenue for trophy hunting and the legal sale of meat.

Urban Expansion: Urban expansion and unplanned human settlement in protected forests is the result of failed enforcement of existing laws, poor urban planning, and population growth. Urban expansion has contributed significantly to loss of Zimbabwe's wetlands. Although construction on Zimbabwe's wetlands is illegal, poor enforcement means developers face few or no consequences for construction on these sensitive ecosystems.

Climate Change/Drought: Climate change impacts in Zimbabwe have the potential to reduce species numbers and habitat suitability, such as increased temperatures and drought (which can result in water stress) and increased fire risk. Climate change impacts that harm agricultural and livestock production, such as increased temperatures, drought, and wildfire risk, may also cause more people to turn to wildlife crime as alternative livelihood sources.

Other threats discussed in more detail below include invasive species and disease and water infrastructure expansion and inadequate water resource management.

DRIVERS OF THREATS

A number of underlying drivers contribute to biodiversity threats in Zimbabwe. See Section 5 for a more comprehensive description of these drivers.

- Poverty, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth
- Institutional and Economic Failures
- Corruption and Patronage
- Insecure Land Tenure and Inconsistent Execution of Land Reform
- Poor Governance Capacity and Lack of Political Will to Enforce Existing Laws
- Growing Energy Demand
- International Demand for Natural Resources
- Lack of Mapping and Other Critical Data Inputs

RECOMMENDATIONS

This section presents the Analysis Team's high-priority recommendations to USAID/Zimbabwe on incorporating Analysis results into subsequent programming. Section 8 includes a complete list and

discussion of recommendations. Table ES-I lists the high-priority recommendations identified in Section 8.

TABLE ES I. HIGH-PRIORITY RECOMMENDATIONS

Support **community-based conservancies and natural resource models** that work at the local level:

1. **Foster an inclusive and sustained biodiversity economy** with diversified revenue inflows for conservation area management authorities and local communities by promoting **sustainable value chains**.
2. **Strengthen governance processes and reduce graft** by creating a multi-stakeholder accountability process and grievance redress mechanisms.
3. **Build capacity and develop skills within communities on sustainable management of natural resources**, including as viable income-generating ventures.
4. **Support diversification of conservation financing options** and, by creating an environment for investment (e.g., longer periods of tenure/lease), **strengthen private-sector engagement and co-management conservation approaches with local communities**.
5. **Enhance the capacity of the community to reduce human wildlife conflict** and ensure communities are the “first line of defense” in combating wildlife crime through monitoring, oversight, and law enforcement initiatives.
6. Map out clear roles and responsibilities for **women, youth, and marginalized communities**.

Work in conjunction with devolution policies that could increase local control over natural resources:

7. **Position natural resource management (NRM) activities to leverage the implementation of governmental devolution policy currently underway in Zimbabwe**, including long-term land tenure reform and increased momentum for community conservancy models (e.g., deriving benefits).
8. **Provide institutional support and training – with a focus on biodiversity and NRM – that builds capacity for local governments and villages/communities**.

Support integrated land-use planning:

9. **Strengthen efforts to implement conservation landscape planning by developing land use plans with local communities** consistent with larger governmental planning efforts that minimize human-wildlife conflict and address water-resource management, land degradation and deforestation, and agricultural expansion.
10. **Support work on landscape connectivity mapping (e.g., wildlife corridors)** and efforts to improve dispersal of wildlife species between protected areas.

Reduce overharvesting of wood for fuel:

11. **Promote sustainable and renewable energy use**, particularly in the agricultural sector.
12. **Enhance ecosystem restoration/regeneration** including promoting reforestation (e.g., indigenous tree planting initiatives), agroforestry activities, management of invasive species, and strengthening water resource security through soil and water conservation projects.

I. INTRODUCTION

I.1 PURPOSE

The purpose of this Foreign Assistance Act (FAA) Sections 118/119 Tropical Forests and Biodiversity Analysis (hereafter, the Analysis) is to inform the development and implementation of United States Agency for International Development (USAID) Zimbabwe’s Country Development Cooperation Strategy (CDCS). Preparation of this Analysis will comply with Sections 118 and 119 of the FAA of 1961, as amended; Agency guidance on country strategy development, under Automated Directives System (ADS) 201 and ADS 204; the [USAID Biodiversity Policy](#); and the [USAID FAA Sections 118/119 Tropical Forests and Biodiversity Analysis Best Practice Guidance 2.0](#) (Best Practice Guide).

I.2 BRIEF DESCRIPTION OF THE USAID PROGRAM

The 2021-2026 USAID/Zimbabwe CDCS aims to foster self-reliance in a country where the government has been challenging to work with. USAID/Zimbabwe and the Government of Zimbabwe (GOZ) have a restricted relationship, with health and education the only allowable areas of collaboration without special permissions or use of notwithstanding authorities.

Technical programming under the CDCS is envisioned under three Strategic Priorities,¹ elaborated in Table I below. The Mission technical teams - Democracy and Governance (DG), Economic Growth (EG), Health Population and Nutrition (HPN), and Humanitarian Assistance and Resilience (HAR) - will share responsibilities across the Strategic Priorities.

TABLE I. USAID/ZIMBABWE 2021-2026 CDCS: DRAFT STRATEGIC PRIORITIES

STRATEGIC PRIORITY #1	STRATEGIC PRIORITY #2	STRATEGIC PRIORITY #3
LIFESAVING SUPPORT AND REDUCING CHRONIC VULNERABILITIES <ul style="list-style-type: none"> • Reduce the burden of HIV, TB, and malaria • Improve maternal and child health • Support pandemic recovery/mitigation/readiness • Boost food security and nutrition • Promote livelihoods and increase income • Improve NRM and environmental recovery • Support disaster preparedness, response & mitigation • Increase absorptive and 	INVESTING IN ZIMBABWE’S YOUTH <ul style="list-style-type: none"> • Increase youth access to health services including family planning, sexual and reproductive health, HIV services • Provide life skills training and livelihoods support to young women • Increase access to finance, skills, entrepreneurship and livelihoods • Support youth participation and leadership in agriculture and natural resources management • Invest in technical & vocational training for youth and on/off farm livelihood support 	IMPROVING ACCOUNTABLE GOVERNANCE <ul style="list-style-type: none"> • Strengthen health systems and improve accountability • Support national planning and monitoring systems • Improve the business environment • Strengthen governance of community assets and systems • Link community-level recovery planning to formal government structures • Increase transformative

¹ This report reflects the February 2021 version of the USAID/Zimbabwe Results Framework/CDCS.

TABLE I. USAID/ZIMBABWE 2021-2026 CDCS: DRAFT STRATEGIC PRIORITIES

STRATEGIC PRIORITY #1	STRATEGIC PRIORITY #2	STRATEGIC PRIORITY #3
<p>LIFESAVING SUPPORT AND REDUCING CHRONIC VULNERABILITIES</p> <ul style="list-style-type: none"> adaptive capacity • Provide legal and psychosocial support to human rights defenders and victims of torture and abuse • Promote community resilience and social cohesion 	<p>INVESTING IN ZIMBABWE'S YOUTH</p> <ul style="list-style-type: none"> • Promote youth and women's leadership, participation and agency in governance and accountability initiatives • Improve youth-centric education and awareness on human rights, democracy, rule of law and elections 	<p>IMPROVING ACCOUNTABLE GOVERNANCE</p> <ul style="list-style-type: none"> capacity • Improve oversight of the executive branch, judicial decisions & legal processes • Increase public interest litigation and media that highlights official misconduct • Strengthen civil society advocacy • Increase capacity of local authorities

See Annex B for a brief overview of technical programming and associated funding earmarks for each of USAID/Zimbabwe's offices/funding streams.

I.3 METHODOLOGY

The Analysis consisted of four primary tasks:

TASK 1: DATA COLLECTION AND ANALYSIS

Task I included a general orientation and work planning that included a kickoff meeting and a desk analysis to identify tropical forests and biodiversity status, key biodiversity issues, stakeholders, policy and institutional frameworks.

TASK 2: WORK PLAN AND LOGISTICAL PREPARATIONS

Given the COVID 19 pandemic, USAID field work and travel were restricted. All interviews, meetings and analyses were conducted virtually. Under this task the Analysis team planned key stakeholder interviews (conducted under Task 3). In coordination with the Mission, the team scheduled interviews based on the Mission's recommendations and the team's preliminary review of key topics and information gaps. Stakeholder interviews supplemented information gathered from literature review and other second-hand sources.

TASK 3. MISSION AND OTHER CONSULTATIONS

In coordination with the USAID activity manager, the Analysis Team conducted meetings and interviews with the USAID program office, technical teams, and other mission environmental compliance points of contact. The Analysis Team also conducted interviews and collected information from Implementing Partners, stakeholders, and others with specific local, national, or regional knowledge that could inform the Analysis. Based on preliminary information, the Analysis Team developed an Interim Briefing memo

and a virtual Interim Briefing meeting designed to get early feedback on threats, drivers, and recommendations.

TASK 4. PREPARATION OF FAA I 18/I 19 ANALYSIS

The Analysis Team analyzed the information gathered and prepared this draft Analysis report in accordance with the Best Practices Guide. A final report will also be prepared and delivered under this task.

Analytical Methods used for this Assessment

1. Desk-based review of relevant scientific literature, published reports, and media accounts;
2. Stakeholder consultation with US- and Zimbabwe-based key informants from civil society, Non-Governmental Organizations (NGOs), United States Government, GOZ, multilateral donors, implementing partners, and the private sector;
3. Spatial analysis; and
4. Insight and professional best judgement from the Analysis Team.

2. COUNTRY CONTEXT

2.1 LOCATION AND COUNTRY DEVELOPMENT CONTEXT

Zimbabwe has an estimated population of 14 million growing at approximately 2% per year (Central Intelligence Agency 2021). Approximately 63% of the population lives in poverty, with 16% living in extreme poverty (U.S. Agency for International Development 2021). The country has a relatively young population, with 58% of the population under 25 years old and a median age of 20.5 (Central Intelligence Agency 2021). Zimbabwe's population is distributed fairly evenly across the country aside from major urban areas in Harare and Bulawayo, though the eastern half of the country is slightly more populated than the west. About 9.5 million Zimbabweans live in rural areas, and Zimbabwe has an urbanization rate of 2.41% (Central Intelligence Agency 2021). The country suffers from high mortality and illness rates as a result of years of poor economic conditions and an under-resourced health-delivery system burdened by HIV, tuberculosis, malaria, and maternal and childhood diseases (U.S. Agency for International Development 2021).

Zimbabweans come predominantly from the Shona ethnic group, with the Ndebele as the second largest ethnic group. Shona and Ndebele are also the most widely spoken languages, though English is also widely spoken and is the language traditionally used for official business (Central Intelligence Agency 2021). Most Zimbabweans identify as Christians, with 74.8% of the country identifying as protestant, 7.3% as roman catholic, and other Christians at 5.3%. However, traditional religions are still practiced by 1.5% of the population (Central Intelligence Agency 2021).

Throughout the 21st century, Zimbabwe has been in a state of political, economic, and social crisis due to the economic policies and human rights abuses of then President Robert Mugabe and the Zimbabwe African National Union – Patriotic Front, exacerbated by a poorly implemented land reform program. In April 2001, the government launched a Fast Track Land Reform Program (henceforth resettlement program) that sought to acquire land from white commercial farmers for redistribution to middle-

income and landless, black Zimbabweans. The resettlement program has been one of the most polarizing issues of Zimbabwean politics, characterized by violence and intimidation and the attendant collapse of domestic banks which held billions in bonds on liquidated properties. The program was marred by lack of compensation for ousted landowners, poor handling of boundary disputes, and agricultural losses. This downwards shift in agricultural production affected major crops and livestock, and degraded the infrastructure and technology surrounding the agricultural industry precipitating a food security crisis (Centre for Public Impact 2017). In 2009, for example, over half of the population of Zimbabwe received food aid (U.S. Agency for International Development 2016). Between 2000 and 2015, over 7 million hectares (has) of land were redistributed, and, because of the collapse of commercial agriculture, approximately 300,000 black farm workers lost their jobs (Centre for Public Impact 2017).

2.2 BIOPHYSICAL SETTING

Zimbabwe is a landlocked country in Southern Africa bordered by South Africa to the South, Botswana to the south-west, Zambia to the north, and Mozambique to the east. It covers a total area of 391,000 km², with the landscape mostly comprising plateau land ranging from 600 to 1,300m above sea level (Sugunan 1997). A central plateau, the high veld, runs from southwest to northwest (650 km long and 80 km wide) and ranges from 1,200 to 1,5000 m above sea level, culminating in the east with high mountains that form a natural border with Mozambique (Sugunan 1997). The highest peak is Mount Inyangani, at 2,592 m above sea level. The lowveld, below 900 m above sea level, makes up approximately one fifth of the country. Zimbabwe's northern border with Zambia and southern border with South Africa are formed by the Zambezi and Limpopo rivers respectively (Ministry of Environment, Tourism, and Hospitality Industry 2020).

The climate of Zimbabwe varies with altitude. While the country lies in the tropics, the climate of the Eastern Highlands and Highveld range from subtropical to temperate. Mean annual rainfall for the country is 675 mm but reaches as low as 300 mm in the Limpopo Valley and as high as 3,000 mm in the eastern mountainous areas (Ministry of Environment, Tourism, and Hospitality Industry 2020). The rainy season lasts from November until March. The relatively high elevation of Zimbabwe has a moderating effect on temperatures, with average annual temperatures ranging from 10°C in the highveld to over 40°C in the southeastern and northeastern lowveld areas (U.S. Agency for International Development 2019). Zimbabwe's increasingly variable climate contributes to negative livelihood impacts throughout the country, contributing to high poverty rates and impacting food security, health, water security, and freshwater ecosystems (U.S. Agency for International Development 2019). Agriculture, the backbone of Zimbabwe's economy and a source of livelihoods for nearly 80% of the population, is mostly rainfed and thus sensitive to rainfall variability (U.S. Agency for International Development 2019).

3. STATUS OF ZIMBABWE'S BIODIVERSITY (INCLUDING TROPICAL FORESTS)



Figure 1: Ecosystem Types of Zimbabwe
 Source: Olson, D. M., et al. 2001. Terrestrial ecoregions of the world: a new map of life on Earth. *Bioscience* 51(11):933-938.

3.1 MAJOR ECOSYSTEM TYPES AND STATUS

Much of Zimbabwe is a high, rolling plateau between 900 and 1500 meters asl. A broad ridge known as the veld runs southwest to northeast across the country. The country’s highest mountain (Inyangani) is on the eastern border and is part of a chain of high mountains between Zimbabwe and Mozambique. Although Zimbabwe is entirely within the tropics, its climate is regulated by its high elevation. In the Food and Agriculture Organization (FAO) global map of ecological zones, Zimbabwe belongs to the tropical dry forest and tropical mountain zones (Muchawona 2020). Below we use the more detailed characterizations provided by World Wildlife Fund in their Global 200 project (Olson and Dinerstein 2002).

3.1.1 WOODLANDS AND GRASSLANDS

The forests, woodlands, and grasslands of Zimbabwe are found throughout the country where they often intergrade to form an open-canopy woodland with characteristically shrubby vegetation. This mosaic of woodlands and grasses contains patches of tropical forest (additional discussion on tropical

forest found in Section 3.2). While this open-canopy woodland-savannah is the dominant ecosystem through much of Zimbabwe, areas of montane forest are found in the eastern highlands along the Nyanga mountains.

3.1.1.1 MONTANE FOREST-GRASSLAND

Zimbabwe's montane forests and associated grasslands are found in the Eastern Highlands, along the border with Mozambique. These highlands are a part of the chain of mountains running through eastern Africa. This ecoregion forms the headwaters of several rivers – notably the Save. The area contains higher levels of endemism than much of the rest of the country. It is characterized by woodlands, grasses, and shrubs with some areas of tropical rainforest along east-facing slopes (Olson and Dinerstein 2002). It is also part of the Eastern Afromontane biodiversity hotspot (see text box). The Chimanimai Mountains within this ecoregion have the highest plant biodiversity in Zimbabwe and contain the Chimanimani National Park (Ministry of Environment Water and Climate 2014). The ecoregion overall is wetter than the surrounding areas due to higher levels of rainfall, low cloud cover, and a characteristic foggy climate. The predominant vegetation type is submontane and montane grassland found along extensive rolling hills. The area's complex mosaic of vegetation results in high species richness in plant and animal groups relative to other parts of the country. Animals found in this region include the Nyanga river frog and the Marshall's pygmy chameleon (International Union for the Conservation of Nature 2021).

3.1.2.1 KALAHARI WOODLANDS

This ecoregion is found in southern and central Africa with a small finger penetrating western Zimbabwe along the border with Botswana. Droughts are common, and most rainfall comes in the form of seasonal storms in the summer (October through March). During the winter (May to August) little to no rain and no surface water results in sparse vegetation (Olson and Dinerstein 2002). Most of the ecoregion is covered by Kalahari sand, and the area is also known as the Sandveld. Due to low rainfall and nutrient-poor soils, the area is not well suited for farming, although cattle herding is widespread. Surface water is scarce, which has limited human expansion and resulted in the retention of important populations of migrating large mammals including giraffe, wildebeest, and elephant. The area is also important for birds, including Bradfield's hornbill, which is one of the only two species considered near-endemic to this ecoregion (International Union for the Conservation of Nature 2021).

3.1.3.1 BUSHVELD

The bushveld is part of the vast savannas of southern Africa, known for herds of migrating large mammals and rich bird life. A savannah is a mixed woodland-grassland ecosystem with an open canopy supporting a grassy understory. The bushveld or "thornbush field" is dominated by acacia, baobab, tall grasses, and – as the name implies - thornbushes. Like all savannahs, the bushveld in South Africa has hot, wet summers and cool, dry winters. In Zimbabwe, the bushveld contains trees about 6 meters in height with unbroken herbaceous grasses. The bushveld ecoregion in Zimbabwe contains the Matopos and Gonarezhou National Parks and the Matobo Hills, which are an essential water catchment area. Numerous raptor species are found in the bushveld, and over 85 mammal species have been recorded in this area, including small but well-protected populations of black and white rhinoceroses (Olson and Dinerstein 2002) (International Union for the Conservation of Nature 2021) (Ministry of Environment Water and Climate 2014).

3.1.3.1 MIOMBO WOODLANDS

The miombo woodlands are the most extensive tropical seasonal woodland and dry forest formation in Africa (Frost 1996). Named for the oak-like "miombo" trees that dominate the region, the southern miombo woodlands contain both miombo and mopane species. These woodlands are home to over 8,500 plants; over half of which are endemic (Tatenda Gotore 2020). In general, the region is characterized as flat or gently undulating, with numerous isolated hills known locally as dwallas or koppies (Olson and Dinerstein 2002) (Ministry of Environment Water and Climate 2014). This area forms part of a larger belt of miombo woodlands that was defined by White as one of the regional centers of endemism in Africa (White 1983). Serpentine soils provide localized sites of speciation and endemism. The miombo ecoregion includes the Chizarira and Matusadona National Parks, as well as numerous safari and Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) areas. The woodlands are home to a diverse array of wildlife that includes antelopes, giraffes, rhinos, lions, and some of the largest populations of elephants in Africa (Chirima, et al. 2018).

3.1.4.1 ZAMBEZIAN AND MOPANE WOODLANDS

This ecoregion is characterized by tropical and subtropical grasses, shrubs, and savannas and is common to southeastern Africa. The mopane tree is ubiquitous in this ecoregion, especially in the lower portions of the Zambezi and Limpopo rivers. Mopane woodlands occur in a zone of tropical summer rain, with most precipitation between November to April. Terrain is generally flat or undulating along the floors of the major river valleys. Although the mopane community is considered to be poor in endemics, it supports some of the largest and most significant wildlife populations in Africa, particularly those of the endangered elephant and critically endangered black rhino. This abundance of wildlife is attributed in part to high levels of protection in the ecoregion. The most significant protected areas include Gonarezhou National Park, Chipinge Safari Area, and the Save Valley Conservancy.

3.1.5.1 ZAMBEZIAN BAIKIAEA WOODLANDS

This ecoregion occurs over a belt of deep Kalahari sands and is dominated by important Zambesi teak forests – also known as Kalahari sand forests (Food and Agriculture Organization 2007). See additional details on these Zambezi teak forests in Section 3.2 below. These forests are dry deciduous, with thicket and secondary grasslands interspersed. The climate is hot and semi-arid. Poor, sandy soils translate to poor agricultural land, which has limited human expansion into this area, and some natural vegetation remains. Baikiaea woodlands fall within the Zambezian center of endemism with unique plant species that are confined to Kalahari sand. The area – which is very dry – is particularly vulnerable to fire, and it does not regenerate easily from fire events. This ecoregion is moderately important for species diversity, containing several important predators such as lion, leopard, and wild dog. The Hwange National Park, Zambezi Mana Pools National Park, and the Gonarezhou National Park occur in this ecoregion. (European Commission 2021). Hwange National Park and Zambezi National Park are part of the Kavango–Zambezi Trans-frontier Conservation Area (KAZA TFCA) (Pouya 2018). Mana Pools National Park is a UNESCO World Heritage Site and part of the Mana Pools/Lower Zambezi Trans-frontier Conservation Area (Andersson 2017). Gonarezhou National Park is an integral part of the Great Limpopo Trans-frontier Park.

3.1.2 AQUATIC

Zimbabwe's aquatic ecosystems are characterized by several major river systems (Section 3.1.2.2), marshes, wetlands, and manmade lakes such as Lake Kariba and Lake Chivero that support wildlife and store water for human uses. Aquatic systems in Zimbabwe are threatened by high levels of pollution,

invasive plants and invasive fish, and overfishing. These threats are discussed in more detail in Section 5.1.

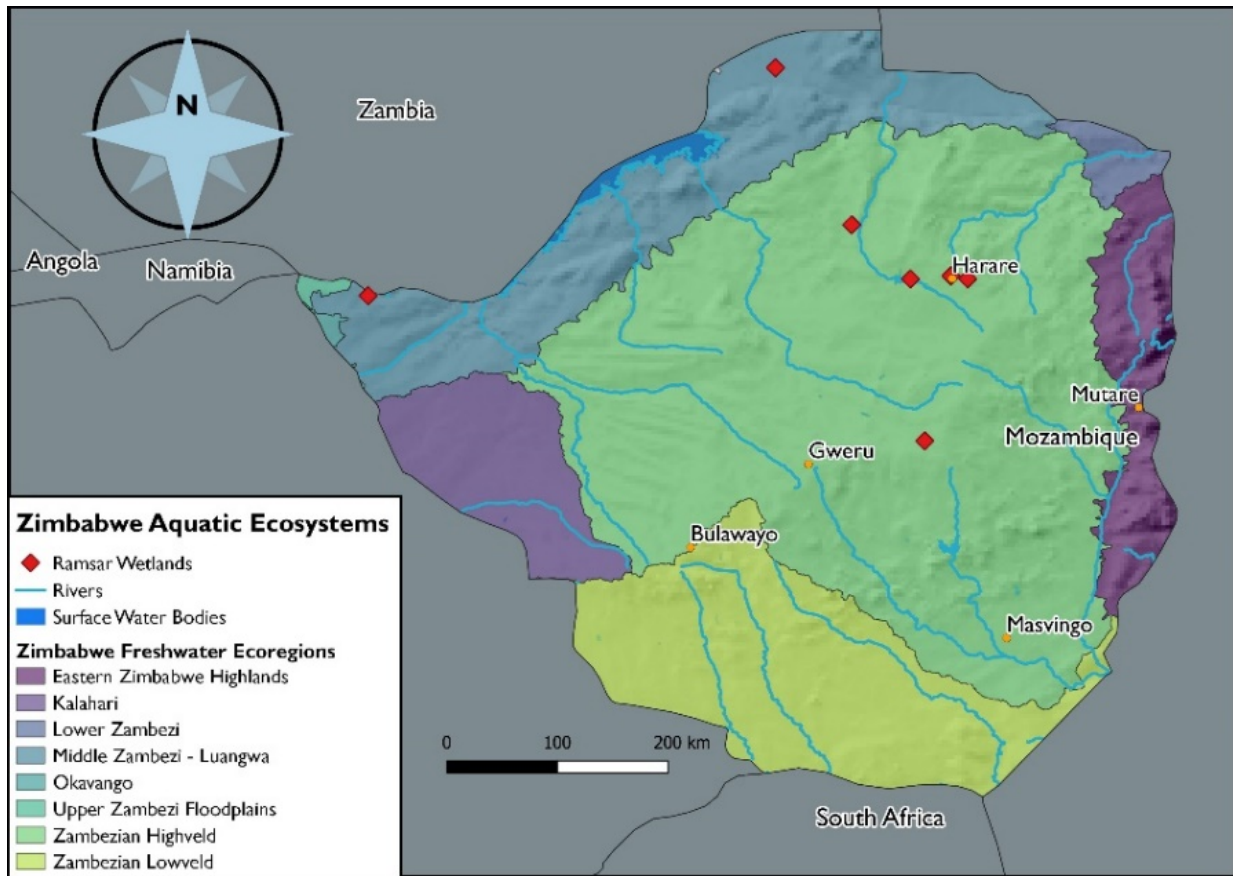


Figure 2: Aquatic Ecosystems of Zimbabwe

Source: The Nature Conservancy and World Wildlife Fund, Inc. 2008. Freshwater Ecoregions of the World; Ramsar Sites Information Service (RSIS), retrieved 15 May 2021 from <https://rsis.ramsar.org/>; RCMRD Geoportal, Zimbabwe Rivers, 2015, http://geoportal.rcmrd.org/layers/servir%3Azimbabwe_rivers#more.

3.1.2.1 WETLANDS

Zimbabwe has a diversity of wetlands including marshes, floodplains, and dambos (see text box). Wetlands in Zimbabwe provide excellent habitat for birds, fish, and insects (Ministry of Environment, Water and Climate 2015). Notable riparian wetlands can be found along several major river systems, including the Save-Runde, and are typically characterized by riparian vegetation. Dambos are an important wetland resource and water source attracting birds (crowned crane, marsh harrier) and vegetation. Over time many of Zimbabwe’s dambos and wetlands have dried out (Marambanyika 2017) Marshes or swamps are rare in Zimbabwe although the Tsamtsa and Kwaluzi swamps are important resources in low rainfall areas (Matiza 1992). Zimbabwe is a signatory to the Ramsar Convention and has seven sites that have been designated as Ramsar protected Wetlands. These are Victoria Falls National Park, Mana Pools National Park, Monavale Wetland, Lake Chivero and Manyame, Driefontein Grasslands, Chinhoyi Caves and Cleveland Dam (Republic of Zimbabwe 2016). See additional details on RAMSAR sites in Section 3.5 below. Other prominent wetlands are the Chipinda Pools and the Save-Runde floodplain. Chipinda Pools is a cluster of large perennial pools in the Lundi River valley, located in Gonarezhou National Park (Freshwater Ecosystems of the World 2019).

Zimbabwe lacks natural lakes, although the country has 80 major dams and approximately 8,000 impoundments that create artificial lakes and ponds. Lake Kariba is the largest reservoir in Zimbabwe (along the border with Zambia). The reservoirs of Zimbabwe were built mostly for irrigation, water supply to cities and municipal councils as well as hydroelectric power generation.

3.1.2.2 RIVERS AND STREAMS

Zimbabwe is located between the Zambezi and Limpopo rivers, situated primarily on a high plateau. Together with Zambia, Zimbabwe is home to Victoria Falls, a protected World Heritage Site, along the Zambezi River (GRID-Ardenal 2013). Besides the two major rivers bordering the country, (i.e., the Zambezi river on the northern border and the Limpopo river on the southern border), there are seven main river systems. These include the Manyame (Mashonaland West, Mashonaland Central and Harare), the Mazowe (Harare, Mashonaland central), the Sanyati (Mashonaland West and Midlands), the Save (Manicaland and Mashonaland East), the Gwayi (Bulawayo and Matebeleland North), the Runde (Midlands and Masvingo) and the Mzingwane (Masvingo and Matebeleland South) (Masocha 2017). The high plateau running diagonally across the country from Plumtree towards the northeast forms the major watershed of Zimbabwe. The northern part of the country is drained by the Zambezi River and the southern part by the Save/Runde and Limpopo. The Save is Zimbabwe's main inland river draining the central watershed. Once a very powerful river, the Save has become silted due to land use practices such as overgrazing and stream-bank degradation from artisanal as well as alluvial mining activities (World Bank 2014)

The main freshwater ecoregion of Zimbabwe is the that of the Zambezian Highveld which includes the headwaters and highland streams of the Zambezi river basin in the north, the Save River in the east, and the Limpopo River in the south. The aquatic habitats found on this plateau are large and small rivers, numerous dambos, a few artificial reservoirs, and isolated floodplains (Freshwater Ecosystems of the World 2019).

The Eastern Zimbabwe Highlands freshwater ecoregion is highly associated with the montane forest-grassland ecosystem geographically. The Nyanga Mountains form the watershed divide on which tributaries of the Pungwe, Save and lower Zambezi Rivers arise. The topography of this freshwater ecoregion is varied and includes deep ravines and gorges separated by steep valleys. Springs and small lakes are numerous at high altitudes, while floodplains and swamps are rare. Dambos are found in the valley bottoms. Four endemic fish (*Labeo baldasseronii*, *Amarginops hildae*, *Varicorhinus pungweensis* and *Parakneria mossambica*)² have been described (Freshwater Ecosystems of the World 2019).

3.2 STATUS OF TROPICAL FORESTS

Different sources are available to measure forest cover in Zimbabwe. These sources use different methods, time periods, and metrics for canopy cover which at times produce different results. Global Forest Watch (GFW) maintains a Geographic Information System (GIS) of global forest cover based on satellite imagery. This source shows forest cover in Zimbabwe as only 2.7% at a tree canopy over 30% and 49% at 10% canopy cover as of 2010. The FAO publishes a Forest Resource Analysis (or FRA) every 5 years. The 2020 publication shows forest cover at 45%. This report uses a landcover data set that was produced from Landsat imagery in 2017. Although the percent canopy is not explicitly discussed, it is

² The Latin names for all species cited in the report are found in Table 12 in the appendix. Common names are provided in the report unless regionally variable or not well known. In these cases, the Latin name of the species is used.

presumed to be around 10% - roughly consistent with GFW. The main species are zebrawood, Zambezi teak, and the Mnondo tree – all medium-sized Africa trees that commonly grow in savannas and open woodlands. Based on GFW's forest loss analyses, between 595,00 hectares of forest, or 3.2%, were lost between 2001 and 2020 at 10% canopy cover. (World Resources Institute 2021) Primary drivers of loss during this time period are thought to be shifting agriculture and deforestation due to urban growth and commodity-driver timber harvest (World Resources Institute 2021). Forests appear to be relatively well-conserved within protected areas. Gazetted forests – managed by the Forestry Commission - have long-term management plans and are approximately 800,000 hectares.

Woodlands, wooded grasslands, and Afromontane forest are common in Zimbabwe. Woodlands include miombo, mopane, acacia, and *Combretum-Terminalia*, with zones of endemic Zambezi teak (see text box). Afromontane forests range from montane to submontane to lowland. Zimbabwe also contains plantation forests that are largely pine, eucalyptus, and wattle (Muchawona 2020).

Intermixed within woodlands are patches of moist forest – or tropical rainforest - especially along the wind-facing slopes of the Nyanga Mountains in Eastern Zimbabwe and in portions of the Chimanimani mountains (Timberlake and Muller 2021). Except for these areas, moist forests across south-central Africa are generally patchy (no more than a few square kilometers in a given stand). A recent study of moist forest loss in Zimbabwe found that forests at higher altitudes have been less affected over time than lowland forests where resettlement has caused significant rates of loss and where land is more suited to agriculture. In addition to resettlement and associated agricultural activities, other drivers of loss include gold mining, particularly along rivers in the Chimanimani area. Successful preservation in these areas can be attributed to formal protection as National Parks or as Forest Land (Timberlake and Muller 2021).

One study in the Nyaki District of Zimbabwe found that between 1990 and 2017, areas of croplands have increased at the expense of forest, with 31% of woodland loss attributable to cropland expansion. Grazing also resulted in a decrease in forest land in the district. Deforestation and associated disturbance of vegetation and soils can lead to higher volumes of runoff during storms and greater erosion. These processes are also associated with reduced infiltration and groundwater recharge - and potentially lower baseflow of streams during dry seasons. (Chimira, Ncube and Vanrooyen 2018).

3.3 SPECIES DIVERSITY AND STATUS

The Republic of Zimbabwe is located between the Limpopo and Zambezi rivers which provide a variety of natural resources for many wildlife species, including the second-largest population of African Elephants on the continent (African Wildlife Foundation 2020). Zimbabwe has a rich biodiversity

ZAMBEZI TEAK FOREST

Zambezi teak forest are found over geologic formations of Kalahari sands in western Zimbabwe. These notable forests protect the Kalahari sand system (Food and Agriculture Organization 2007). Zambezi teak is one of the most durable heavy-duty timbers in the world, although it is distinct botanically and structurally from Southeast Asia's "true" teak. Zambezi teak provides important commercial timber, stabilizes sandy soils preventing an extension of the Kalahari Desert, and hosts a plethora of native plant and animal species. The loss of these teak forests is concerning. Unlike other savannah-woodland forests they are more fragile, and their soils (Kalahari sands) are easily degraded once the vegetation cover is removed.

heritage and was known for its history of conserving wild flora and fauna (United Nations Environment Programme 2020). Specifically, it has over 600 bird species (BirdLife International 2021), 270 mammals, 197 reptile species, 120 amphibian species and 145 fish species (Froese and Pauly 2018).

Notable large mammals include leopard, buffalo, lion, giraffe, and zebras. African wild dogs are sub-Saharan Africa's most endangered large carnivore, with the largest known population (roughly 700 individuals) inhabiting Zimbabwe. The endangered species is estimated to have a population of 3,500 to 5,000 individuals continent-wide (KAZA TFCA Secretariat 2014).

Common threats to wildlife species in Zimbabwe include poaching, illegal wildlife trade and trafficking, human wildlife conflict, and land use change that transform or compromise the integrity of the critical habitats. Human wildlife conflicts are exacerbated by land use changes as these affect the dispersal routes and movement of populations of some key megafauna such as elephants and buffalo. Critical species susceptible to poaching include white and black rhino (near threatened and critically endangered, respectively), and the African elephant (Chanyandura, et al. 2021, Muboko, et al. 2014).

The elephant population in Zimbabwe is a source of promise as well as conflict. While the elephants in Zimbabwe are essential contributors to the global population, human-wildlife conflict is high in some of its areas of its range, and elephant overpopulation has been linked to cascading negative impacts on other wildlife species due to destruction of habitats and transformation of ecosystems over time (Kerley 2008). Similarly, there have been elevated levels of human-elephant conflict in communities surrounding protected areas emanating from the high elephant densities (Shaffer, et al. 2019). A 2016 status report estimated a continental population of over 415,000 for both African savanna and forest elephants with a continental decline of approximately 111,000 elephants since 2006 (Thouless 2016). Over the same period, a 30% decline of the savanna elephant population was reported (Chase MJ 2016). While populations of elephants are in decline globally and throughout Africa in Zimbabwe over-population of elephants in certain areas is problematic. With an estimated 100,000 elephants, Zimbabwe has the second biggest elephant population in Africa after its neighbor Botswana (Matiashe 2021). Overall, the elephant population in Zimbabwe was down 6% according to recent studies. However, in the Sebungwe region, populations were down 74%. The southeast lowveld population was noted to have been increased while that of northwest region (Hwage-Matetsi Complex) was stable.

The Zimbabwe Parks and Wildlife Management Authority (ZimParks) manages the Parks and Wildlife Estates, nearly 13% of the land throughout the country. ZimParks is responsible for the coordination and convening of quota setting workshops, for the purposes of engaging stakeholders on the sustainable offtake levels and harvesting of wildlife species in some safari areas, private areas and CAMPFIRE areas. Zimbabwe currently holds an export quota of tusks as part of hunting trophies from 500 elephants per CITES regulation (CITES 2021), and as of 2018, the country has legally harvested an average of 250 adult bulls per year. While legally harvesting adult males as part of trophy hunting programs has minimal impacts on the overall population, some researchers are concerned that it contributes to poaching elsewhere (Matiashe 2021).

Some species also suffer because of targeted attacks intended for the harvest of other species. For example, in 2018 ninety-four critically endangered white-backed vultures were reported dead after feeding on poisoned elephant carcasses (Fuhnwi 2017). These events are common near Chiqualaqala, where wildlife trafficking from Zimbabwe through the neighboring country Mozambique is common.

The woodland-grassland mosaic in Zimbabwe contains high levels of endemism and diversity, supporting birds, amphibians, reptiles, and plants. These forests support restricted bird ranges and have resulted in establishing many International Bird Areas in the region. The Chimanimani region in the Eastern Highlands contains over 90 species of plants that are vulnerable, critical, or endangered according to IUCN. Other key areas with a high number of threatened plants include the Limpopo-Save in the Southeast with 48 species, and the Limpopo escarpments with roughly 25 species (Ministry of Environment, Water and Climate 2015).

Zimbabwe has several endemic plant species. The Chimanimani Mountains and the Great Dyke are known to contain the richest abundance of endemics with 42 and 20 species, respectively (P. Mapfumo 1996). Other areas with high plant diversity include the Chirinda Forest which supports 740 of the 6,000 vascular plants recorded in Zimbabwe.

Habitat destruction has been especially detrimental to mosses and hydrophilic orchids and ferns, whose wetland habitats have been destroyed by drought, cultivation, and fire (Ministry of Environment and Natural Resources Management 2010).

According to Birdlife International, there are 750 bird species throughout the country, with roughly 21 identified as Endangered, Threatened or Vulnerable. Three species of vulture, the white-headed, hooded, and white-backed vulture, and the white-winged flufftail, are the only known critically endangered bird species throughout the country.

Studies have shown strong correlations between habitat structure and diversity of birds in Zimbabwe, with habitat degradation acting as a major factor leading to the extirpation of local species (Mzendah 2015, Tarakini, Mundy and Fritz 2020). For example, one study on bird species composition and abundance across differing land disturbance gradients found higher bird species richness in unprotected areas of Manjinji Pan when compared to protected areas of Manyanda Pan in Gonarezhou National Park. Between the study sites, roughly 2706 individual birds belonging to 131 species and 60 families were identified (Mzendah 2015).

Important Bird Areas (IBA's) throughout Zimbabwe have historically lacked legal protection. Many IBA's outside of protected areas contain open water and a diverse mosaic of woodlands, often the resulting indicator of habitat degradation. Species within IBAs' often contain a rich diversity of birds, including Zimbabwe's Driefontein IBA which contains globally threatened species like the wattled crane, grey crowned crane, and secretary bird. Waterbird communities are sensitive to human drivers including fishing and agriculture, which threaten resource availability among critical wetlands and grasslands. Although impacts from the government resettlement program in 2000 have not been well studied, research has shown compounding effects to important bird areas from cattle grazing, tree cutting and veld fires since its implementation (Togarasei Fakarayi 2015).

3.4 GENETIC DIVERSITY

This section is focused on the genetic diversity of economically important species, including landraces and wild relatives of agriculturally important crops, culturally important plants, and livestock. Historically there has been little research or focus on diversity of cropped plants or farm animals. Some basic information exists, such as a genetic study of indigenous chickens, which are an important part of the smallholder farming system (Muchadeyi 2007). One study on the genetic diversity of maize in Zimbabwe

found that variability has neither significantly decreased nor increased over time. This and other similar studies confirm that considerable genetic variation in maize exists in the region (Magorokosho 2006). Note that maize is not native to Africa but was introduced in the 17th century. Maize has since become a dominant food crop in southern Africa, and in Zimbabwe a recent shift towards maize production comes at the expense of other local crop types. A recent study on the genetics of a drought-tolerant and protein-rich legume - the bamabara groundnut - advocates for the use of this native crop to diversify crop production in the South African region (Minnaar-Ontong 2021). Over the last three decades, the GOZ has promoted the use of hybrid seed over local landraces.

Several species of medicinal plants are declining in Zimbabwe. Overharvesting is an issue, along with lengthening droughts associated with climate change. One villager interviewed for the Thomson Reuters Foundation stated that: “We are worried that our source of medicines is fast disappearing. I used to get a plant known locally as mutsembori to treat various sicknesses at the wetland nearby but due to the droughts experienced in the past years the wetland is gone and the plants are gone too.” The link between water scarcity and a loss of medicinal plants is significant (Mambondiyani 2017).

In terms of livestock, Africa hosts genetically unique cattle, being products of generations of co-evolution across the landscape. Over 150 indigenous breeds of cattle exist in Africa, of which 47% are under threat while 22% risk going extinct. Threats include competition from local breeds, unplanned crossbreeding, globalization leading to new market standards, and the lack of policy frameworks to support animal genetic resources (Okeyo, Persley and Kemp 2019).

In 2010 the State of Environment Report indicated that the previous introduction and promotion of exotic varieties throughout Zimbabwe led to the genetic contamination of indigenous breeds. Since then, the Ministry of Agriculture, Mechanization, and Irrigation Development has shifted its focus on agricultural biodiversity, encouraging multicropping as part of its conservation agriculture policy. The draft National Agricultural Policy Framework (2012-2032) for Zimbabwe has set policy goals aimed at growing high yield, drought-tolerant crops with heavier research placed on grains and tubers and the preservation of indigenous seed varieties (Ministry of Environment Water and Climate 2014).

The Genetic Resources and Biotechnology Institute (GRBI) heads a decentralized network of organizations and institutions that manage ex situ collections of plant genetic resources, and in 2009 the GRBI contained 3,464 accessions of plant genetic resources. As of April 2014, the gene bank held 5,864 accessions, showing increased importance and focus on the preservation of genetic resources. In 2013, Zimbabwe adopted its second National Biodiversity Strategy and Action Plan (Ministry of Environment Water and Climate 2014). The plan focused on 18 national biodiversity targets, including conserving and maintaining domesticated genetic resources and their wild relatives (by 2020), and agreeing to and adopting the Nagoya Protocol on access to genetic resources (by 2015).

While efforts are in place to promote and preserve genetic diversity across the food sector, veld fires, deforestation, invasive species, and promotion of hybrids are a constant threat and will likely need to be addressed to preserve genetic cultivars. Conservation of agro-biodiversity is relevant and important for food security and eradication of extreme poverty and hunger, one of the UN Millennium Development Goals (Zimbabwe 2014).

3.5 STATUS AND MANAGEMENT OF PROTECTED AREAS

Formerly recognized for innovative co-management arrangements, well capacitated management, and a wealth of floral and faunal diversity, Zimbabwe’s protected areas network is no longer characterized by the excellence with which it was once regarded. In the early 2000s, those responsible for maintaining Zimbabwe’s parks and protected areas, ZimParks -- The Forestry Commission, and the Wildlife Management Authority--were plagued by staff departures, reduced funding, and weakened enforcement capabilities undermining the credibility of these institutions (Miller and Gwaze 2012). However, some stakeholders have noted improvements over the last decade, and data suggest that current protected areas are amongst the only areas that maintained strong conservation capabilities since implementation of the 2000s resettlement program (Timberlake and Muller 2021).

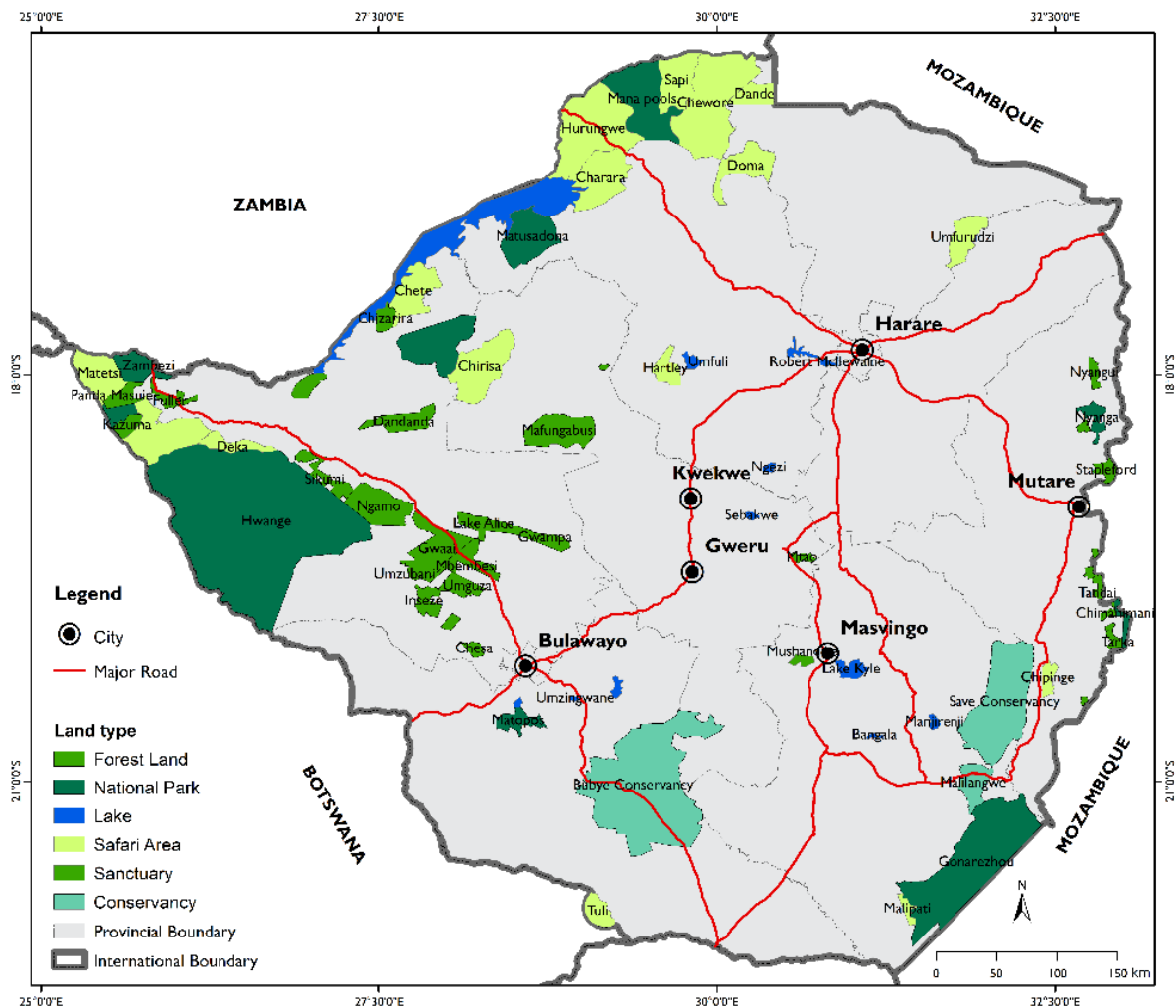


Figure 3. Map of Zimbabwe's Parks and Protected Areas
Source: Chiwara.P. (2021)

Protected areas are clearly defined geographical spaces, recognized, dedicated, and managed through legal or other effective mechanisms to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley 2008). Zimbabwe’s protected areas are made up of different categories based on IUCN’s protected areas’ definitions. These are National Parks, Safari

Areas, Botanical Reserves and Botanical Gardens, Sanctuaries, and Recreational Parks as outlined in the Parks and Wildlife Act; and State Forests and Protected Forests, as designated in the Forest Act. Through these Acts, various legal entities are granted “Appropriate Authority” over wildlife outside protected areas. These authorities include private landowners (where the land is held under an agreement of purchase or lease) and forest land (such as Forestry Commission estates). In the case of communal land, Appropriate Authority may be granted to the Rural District Councils (RDC) by the Minister of Environment with recommendations from ZimParks. The Appropriate Authority clause in the Act made it possible to implement CAMPFIRE (African Wildlife Foundation 2011).

With respect to the integration of indigenous people in Zimbabwe’s protected area statutes, the Constitution of Zimbabwe does not refer to indigenous peoples except incidentally in Chapter 15, paragraph 295(1), where it mentions “Indigenous Zimbabwean,” but does not define the term. It is commonly understood that people of southern African descent whose predecessors were in the country prior to 1890 are considered indigenous Zimbabweans (Chibememe, et al. 2014). See text box above. The common characteristics of indigenous people as outlined in the Indigenous Declaration are similar to those of local communities and, as such, indigenous people and local communities are often used interchangeably in Zimbabwe. These common characteristics include self-identification; social cohesion; willingness to be represented as a local community; traditional knowledge transmitted from generation to generation, including in oral form; shared common property over land and natural resources; lifestyles linked to traditions associated with natural cycles; the use of and dependence on biological resources; and the sustainable use of nature and biodiversity, among others. Throughout Zimbabwe, including near protected areas, local communities have their own tribal and traditional governance systems headed by chiefs (Mambo), headman (Sabhuku), and village heads (Sabhuku). However, some modern administrative systems such as Wards, Ward Development Committees, and community-based organizations, and (Trusts) are also considered legitimate governance structures for local communities (Chibememe, et al. 2014). Most protected areas in Zimbabwe are surrounded by local communities that play a crucial role in conservation particularly safari areas and community conserved areas (e.g., CAMPFIRE areas). Some view these people as the first line of defense in ensuring the protection of biodiversity from illegal use. To ensure sustainability of protected areas in Zimbabwe, their conservation and management has evolved to integrate local or indigenous people through various governance models such as collaborative management (Mendonça 2010).

There are only two distinct indigenous people/minority groups in Zimbabwe -- the Tshwa San of Matabeleland South (Tsholotsho District) and of the Doma (Vadema) in the Zambezi Valley. The Tshwa San people used to occupy parts of Hwange National Park but are now mostly confined in Tsholotsho District close to the park and do not reside inside the park (Wriston and Haynes 2018). Meanwhile, the Vadema people reside in Doma Safari Area, a designated protected area in Mid Zambezi Valley (Ndlovu 2020). However, the GoZ does not recognize any specific groups as indigenous to the country and is reluctant to align the legal provisions and governance despite these two groups

INDIGENOUS COMMUNITIES IN ZIMBABWE

According to the 2009 Access to Genetic Resources and Indigenous Genetic Resource-based Knowledge Regulation, an indigenous community is “a community of persons that has inhabited Zimbabwe continuously since before the year 1890 and whose members share the same language or dialect or the same cultural values, traditions or customs.”

meeting the defining characteristics of indigenous people as well as the 2009 Access to Genetic Resources and Indigenous Genetic Resource-based Knowledge Regulation. Reasons behind this misalignment are not and may be political. Nonetheless, local government, civic groups, and conservation partners such as AWF has been working together to support the Vadema people so that they can be integrated with other local communities and possibly move out of the protected area.

Zimbabwe is home to 232 protected areas covering 27% of Zimbabwe's land mass, or 106,838km², of which 222 are nationally designated and 10 are internationally designated (UNEP-WCMC 2021). Zimbabwe's twelve national protected areas designations include a nature reserve (1), national parks (11), recreational parks (12), safari areas (16), sanctuaries (10), wildlife management areas (104), botanical reserve (14), botanical garden (3), state forests (43), protected forests (6), wilderness areas (1), and national monument (1) (UNEP-WCMC 2021). National parks, wildlife estates and gazetted forests comprise 14.9% of the country's protected area network, privately owned conservancies are 1.9% of the network, and CAMPFIRE (areas are 11.2% of the network (Ministry of Environment, Tourism, and Hospitality Industry 2020).

Nature Reserves: Not a designation formally assigned by the Parks and Wildlife Act, but nevertheless informally interpreted as a type of botanical reserve and sanctuary, Zimbabwe's sole nature reserve, Cecil Kop, is a 1,500-ha site on the outskirts of Mutare. Established in 1977, It is managed by the Manicaland branch of Wildlife and Environment Zimbabwe to provide educational and recreational facilities for citizens to view wildlife. Cecil Kop is the only listed nature reserve in Zimbabwe, however, there are other areas that provide similar recreational and conservation value, including Antelope Park Nature Reserve, Greystone Park Dam, Mukuvisi Woodlands, Haka Camp Game Park and Wild Is Life (Ministry of Environment, Tourism, and Hospitality Industry 2020).

National Parks: Zimbabwe's national parks are managed and run by the ZimParks. Established to preserve the areas they occupy without human interference, no hunting or extractive uses (such as mining) are allowed in the parks. As noted in Section 5 on Threats, however, extractive industries have won concessions for mining in some of these landscapes. There are eleven parks Chimanimani, Chizarira, Gonarezhou, Hwange, Kazuma, Pan, Mana Pools, Matobo, Matusadona, Nyanga, Victoria Falls and Zambezi (Ministry of Environment, Tourism, and Hospitality Industry 2020).

Recreational Parks: Recreational parks typically center around national water bodies such as lakes and dams. ZimParks, the management authority for these protected areas, is also mandated with the management of Zimbabwe's aquatic life and monitoring the impacts of recreational activities on the environment. These areas include Lake Kariba, Lake Chivero, Chinhoyi caves, Kavira hot springs and Mupfure among others (Ministry of Environment, Tourism, and Hospitality Industry 2020).

Safari Areas: Designated as hunting zones, Safari areas occur mainly surrounding National Parks and are managed mainly for the sustainable use of natural ecosystems, through a quota system for sustainability and as part of a buffer zone to cushion National Parks from human disturbances (Ministry of Environment, Tourism, and Hospitality Industry 2020, Locke and Dearden 2005).

Sanctuaries: Sanctuaries, many of them privately owned and operated, are designated as reserves for endangered animal species. Sanctuaries are meant to offer safe breeding habitats for the species they host. Protected areas with sanctuary designation include Mushandike, Nyamanechi, Bubiana, Malilangwe,

Save and Chiredzi River conservancies (Ministry of Environment, Tourism, and Hospitality Industry 2020).

Wildlife Management Areas: Making up 11.2% of the protected areas, wildlife management areas in Zimbabwe are largely associated with the CAMPFIRE program (see text box). Begun in the 1980's and managed by ZimParks, CAMPFIRE areas were meant to offer livelihood benefits for communities living in areas rich in biodiversity where agricultural production potential was limited. Community management of these areas through the co-management of wildlife was meant to offer benefits for the successful management of natural resources in areas of high biodiversity value. In this way, CAMPFIRE areas would encourage conservation and enable communities to accrue benefits without needing to rely on unsustainable use of natural resources for capital. The limitations of this management approach have been widely discussed and evaluated (Ministry of Environment, Tourism, and Hospitality Industry 2020).

CAMPFIRE

Premised on the conservation and sustainable utilization of wildlife and other natural resources as a livelihood option for rural communities, CAMPFIRE has focused on wildlife-rich, hot, arid regions, which are marginal for purposes of subsistence agriculture. The program helps to protect ~50,000km² of wildlife habitat in communal areas, and 58 out of 60 districts in the country (over 200,000 households) are members of the program. CAMPFIRE provided a stimulus to the development of community-based NRM activities; however, the program has been hampered by corruption and USAID stopped its funding support in 2005.

Botanical Reserves and Botanical Gardens: Zimbabwe has three Botanical Gardens and 14 Botanical Reserves. These areas specialize in the protection and propagation of indigenous and exotic plant species. Included in this designation is the National Botanical Garden, which houses the National Herbarium of Zimbabwe. Located in Harare, the National Botanical Garden houses over 900 indigenous tree and shrub species and includes a research center dedicated to the preservation and research on sustainable use of indigenous species. The National Herbarium, a research center dedicated to identifying plants of the Flora Zambesiaca region³ houses over 500,000 plant species. Among Zimbabwe's most well-known botanical reserves are the Haroni and Rusitu forests, located on the boundary with Mozambique, south of Chimanimani National Park. These two botanical reserves are home to a significant density of Zimbabwean biodiversity and part of the important bird area network (Ministry of Environment, Tourism, and Hospitality Industry 2020).

State and Protected Forests: Of Zimbabwe's forty-nine protected forests, twenty-two have been gazetted specifically for the protection of indigenous species. Protected areas under these designations are managed by the Forestry Commission. Nineteen of these protected areas are in western Zimbabwe on fragile Kalahari sands, which are soils prone to desertification if forests are improperly managed and trees indiscriminately removed. Forests in western Zimbabwe include commercially valuable indigenous timber species such as African teak, mukwa, wooden banana, mchibi, leadwood and white seringa (Ministry of Environment, Tourism, and Hospitality Industry 2020).

³ Which includes Zimbabwe, Zambia, Malawi, Mozambique, and Botswana.

International Designations for Protected Areas

Transfrontier Conservation Areas (TFCAs) refer to jointly managed cross-border protected areas, the purpose of which is to coordinate the sustainable use of natural resources across political boundaries. Zimbabwe is currently pursuing six TFCAs with neighboring countries, each in various stages of development. These include the Greater Limpopo , Greater Mapungubwe , Kavango-Zambezi (KAZA), Chimanimani, Lower Zambezi-Mana Pools, and the Zimbabwe – Mozambique – Zambia TFCAs (Zimbabwe Parks and Wildlife Authority 2020).

UNESCO-Man and the Biosphere (MAB) Biosphere Reserve and World Heritage Sites:

Located along the Zambezi River, the Middle Zambezi biosphere reserve was established in 2010, covering 2,879,300 ha of terrestrial and riverine ecosystems. Endangered animal species found in the reserve include the painted wild dog, black rhino and the nyala. The reserve's flora is composed of *Colophospermum mopane*, *Combretum* and *Terminalia* woodland species and Zambezi riparian forest. Mana Pools – part of the reserve – is the only remaining floodplain ecosystem in the Middle Zambezi (United Nations Education, Scientific, and Cultural Organization 2019).

The two World Heritage Sites in Zimbabwe are Mosi-oa-Tunya (Victoria Falls) and Mana Pools National Park. Both heritage sites share some management authorities with Zambia. Mana Pools covers 6,766 km² and Mosi-oa-Tunya is 68.6 km² (Ministry of Environment, Tourism, and Hospitality Industry 2020).

Ramsar Wetlands of International Importance: Party to the Ramsar Convention on Wetlands since 2013, Zimbabwe has designated seven Ramsar Wetlands covering 453,828 ha (Ramsar 2021). Domestic protections of these wetlands are included under the Environmental Management Act. The seven designated wetlands are Mosi-oa-Tunya, Driefontein Grasslands, Middle Zambezi/Mana Pools, Lake Chivero, Monavale Vlei, Chinhoyi Caves, and Cleveland Dam (Ramsar 2021).

Additionally, Zimbabwe is home to 7 Ramsar sites⁴ covering 453,828 hectares of land (Ramsar 2021). These 7 sites are the Chinhoyi Caves Recreational Park, Cleveland Dam, Driefontein Grasslands, Lake Chivero and Manyame, Mana Pools National Park, Monavale Wetland, and Victoria Falls National Park (Ramsar 2021).

Other Areas of Recognized Value

Important Bird Areas (IBAs): Birdlife Zimbabwe identifies 20 IBAs of international significance, 17 of which are in protected areas. According to a 2008 study, 64% of the IBAs are poorly conserved and 36% are moderately conserved. Between 2001 and 2008, the following IBAs showed signs of significant deterioration: Nyanga Mountains; Chimanimani Mountains; Robert Mcllwaine Recreational Park and Save-Runde junction, Batoka. Over the same period, the conservation statuses of the Hwange National Park and Chizarira National Park IBAs improved (Mukwashi, 2007).

⁴ A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention. The Ramsar Convention provides for national action and international cooperation regarding the conservation of wetlands, and wise sustainable use of their resources.

3.6 STATUS AND MANAGEMENT OF KEY NATURAL RESOURCES OUTSIDE OF PROTECTED AREAS

Table 2 below represents current available information regarding ecosystems outside of protected areas in Zimbabwe. The protected area GIS layer used to create Figure 3 was overlaid with the ecosystem GIS layer used to create Figure 1 to generate this information.

As shown in the table, the Zambezian Baikiaea woodlands are the most well protected ecoregion and the Eastern Zimbabwe montane forest-grassland and the bushveld are the least protected. Based on this simple spatial analysis, 322,000 km², or approximately 73%, is not protected by an official designation.

In addition to the overlay analysis, the recently published USFS Assessment of Land Use Change and Ecosystem Services report conducted an analysis of available data on biodiversity, timber, and non-timber forest products. The analysis identifies four areas of biodiversity importance that are outside of protected areas: southwest of Gonarezhou National Park, the northern end of the Great Dyke, the area to the east of the Mana Pools, and portions of the Eastern Highlands (Underwood, Hahn and Hollander 2020).

TABLE 2. NATURAL RESOURCES OUTSIDE OF PROTECTED AREAS

ECOSYSTEM	AREA (KM ²) OUTSIDE OF PROTECTED AREAS	PROPORTION OF ECOSYSTEM TYPE OUTSIDE OF PROTECTED AREAS
Montane Forest-Grassland	6,007	90.9%
Kalahari Woodlands	1,640	52.7%
Bushveld	54,819	88.0%
Miombo Woodlands	163,840	93.3%
Zambezian and Mopane Woodlands	79,931	74.2%
Zambezian Baikiaea Woodlands	16,331	48.0%

SOURCE: USAID/ZIMBABWE CDCS INTERNAL PROCESS DOCUMENTS, 2020 – 21

3.7 OVERVIEW OF ECOSYSTEM SERVICES

Ecosystem services are benefits humans receive from nature. These benefits include goods such as food, fuel, and fiber; and services such as carbon sequestration (Science and Policy for People and Nature Secretariat 2019). In seeking to understand and characterize the values provided by ecosystem services, economists typically classify these services into three categories: provisioning services, cultural services, and regulating services. Provisioning services arise from the direct use of goods, such as food, fuel, water, timber, non-timber forest products, medicine, and raw materials. Cultural services result from meaningful interactions that people have with ecosystems, which include outdoor recreation, aesthetic enjoyment, education, and the intrinsic spiritual value of land. Regulating Services are outputs from the normal functioning of ecosystems that benefit people in both direct and indirect ways, such as the regulation of climate, air and drinking water quality, soil formation and retention, moderation of extreme events, and biological control. Supporting services underlie these three ecosystem service categories through extremely long-time horizons and broad-scale processes, such as soil creation and nutrient cycling (see Figure 6). Biodiversity is critical to the provision and long-term maintenance of these ecosystem services (Balvanera, Patricia, et al 2016, Harrison, Paula et al 2014). High-biodiversity areas provide over half of the ecosystem services on which the global poor depend, and conservation of

those areas has an outsized effect: conserving the top 25% of the world’s high-biodiversity areas could provide 56–57% of the total potential ecosystem goods and service benefits (Turner, et al. 2012).

This section describes some of the key ecosystem goods and services that provide value to Zimbabwe, broken down by the categories of provisioning services, cultural services, and regulating services.

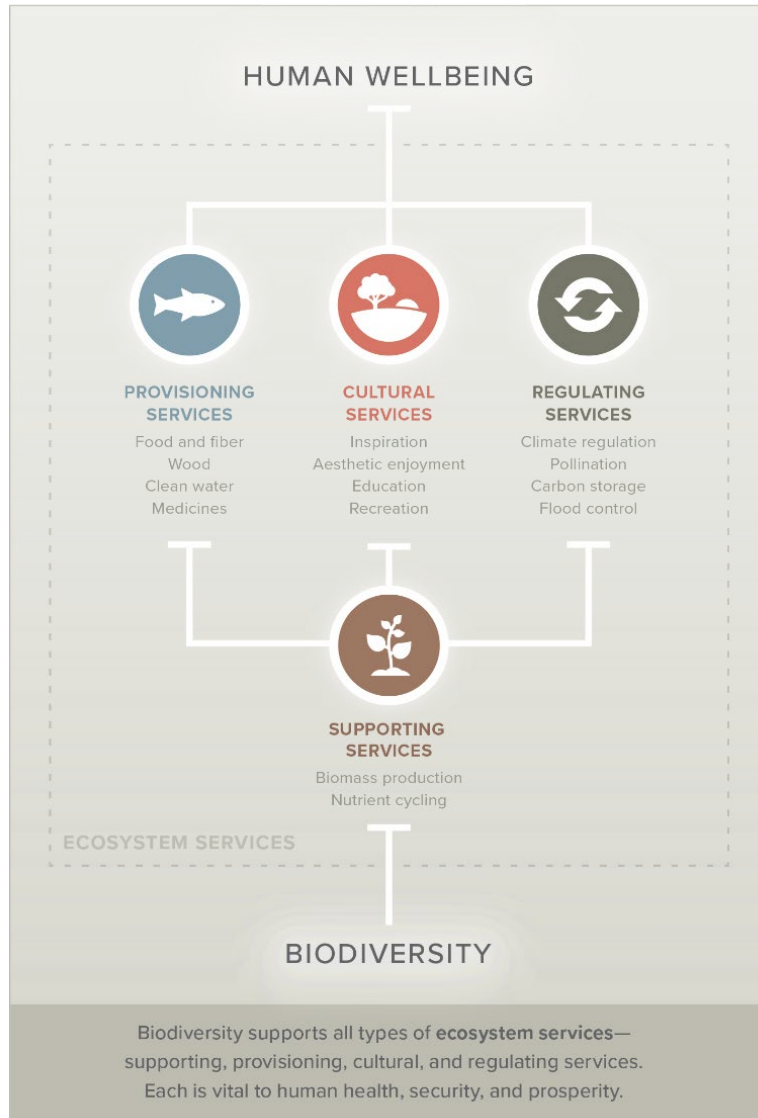


Figure 4. Ecosystem Services

3.7.1 PROVISIONING SERVICES

Zimbabwe has a total land area of 390,757 km², and approximately 42% (166,071 km²) of this total is used for agricultural purposes (United States Central Intelligence Agency 2020). In 2017, Zimbabwe’s total Gross Domestic Product (GDP) was \$22 billion with the agriculture sector accounting for 12% (\$2.64 billion) of this total (Central Intelligence Agency 2021). The livelihood of much of the population is dependent on agriculture, with roughly 67% of the country’s labor force employed by the agricultural sector (Central Intelligence Agency 2021). Zimbabwe’s main agricultural products are sugar cane, maize,

milk, tobacco, cassava, vegetables, bananas, beef, cotton, and oranges (Central Intelligence Agency 2021). In 2019, Zimbabwe's highest producing crop was sugar cane (3.56 million tons) which was followed by maize (777 thousand tons), and tobacco (257 thousand tons) (Food and Agriculture Organization of the United Nations 2019). Zimbabwe was the fifth largest tobacco producer in the world in 2019, behind only China, Mainland China (excludes Taiwan, Kinmen, Matsu, Pescadores, Hong Kong and Macau), India, and Brazil (Food and Agriculture Organization of the United Nations 2019). Overall, approximately 60% of rural Zimbabwe households own cattle, 70 to 90% own goats, and 80% own chickens (Food and Agriculture Organization of the United Nations 2018).

Water is also an essential resource in Zimbabwe as it supports fisheries and hydropower. Lake Kariba is a vital body of water in Zimbabwe, which provides the infrastructure for fisheries and hydropower production. Zimbabwe's largest hydropower generation plant is located at the Kariba Dam, and the Dam provides power to both Zimbabwe and Zambia. Zimbabwe operates the Kariba South Power Station portion of the Dam, which has a total generation capacity of 1,050 MW and can generate a maximum of 5,000 GW/hours depending on the inflows to the Dam (Zimbabwe Power Company 2021). Lake Kariba further hosts the country's largest fishery, which contributes approximately 90% of the country's fish production (Food and Agriculture Organization of the United Nations 2016). On a national level, 43.7 thousand individuals were employed by the fishery industry and total fishery production was estimated to be 21.4 thousand tons in 2014 (Food and Agriculture Organization of the United Nations 2016).

Non-timber forest products are also used for subsistence and commercial purposes in Zimbabwe. In 2012, the estimated gross value from harvesting natural products in Zimbabwe was \$110 million annually (United Nations Development Programme 2014). Natural products include mushrooms, edible fruits (such as masau), and honey (United Nations Development Programme 2014). Additionally, wood energy is the primary source of energy for heating and cooking in Zimbabwe (United Nations Development Programme 2014). Annual fuelwood consumption in Zimbabwe is estimated to be 8.54 million cubic meters (United Nations Development Programme 2014). Zimbabwe's forests and ecosystems also provide medicinal plants to local communities. The most commonly used plants are Leguminosae, Aristolochiaceae, and Rutaceae (Ngarivhume, et al. 2015). Most medicinal plants in Zimbabwe are soaked in water and the water extract is taken as the active medicine (Ngarivhume, et al. 2015).

3.7.2 REGULATING SERVICES

Zimbabwe's woodlands cover roughly 40% of the country's land area and provide valuable carbon storage and biodiversity conservation services (United States Central Intelligence Agency 2020). See 3.2 for additional discussion of forest cover. It is estimated that the forest cover of the Eastern Highlands of Zimbabwe stores 127 tons of biomass per hectare while the communal lands north of Hwange National Park and the northern tip of the Eastern Highlands are estimated to store 33 tons of biomass (Underwood, Hahn and Hollander 2020). On a national level, it was estimated in 2015 that 964.79 million metric tons of carbon are stored in Zimbabwe's forests (Food and Agriculture Organization of the United Nations 2015).

Additionally, Zimbabwe is home to 7 Ramsar sites⁵ covering 453,828 hectares of land (Ramsar 2021). See Section 3.5 for additional details on Ramsar sites. Victoria Falls National Park provides habitat to a number of black rhinoceroses (10% of the world population lives in the park), elephants, buffalo, lions, and leopards (Ramsar 2016). Further, 85% of the total national population of the vulnerable wattled crane and endangered grey crowned crane are supported by the Driefontein Grasslands habitat (Ramsar 2016). In addition to habitat provision, Zimbabwe’s Ramsar Sites provide other important regulating services such as water filtration, provision of habitat for native species, erosion control, nutrient cycling, and soil formation.

3.7.3 CULTURAL SERVICES

In addition to the significant role that forests play in providing provisioning, regulating, and supporting ecosystem services, they also have an important spiritual purpose in Zimbabwe’s culture. One example is forested land along the Musengezi River, which is believed to be protected by ancestral spirits and unauthorized tree cutting is strictly prohibited (Byers, Cunliffe and Hudak 2001). Local communities also use dry forests as burial places, thus making them spirit-inhabited sacred spaces (Byers, Cunliffe and Hudak 2001). One source recounts a belief held by local people in the Zambezi Valley that former chiefs take the form of lions after death and therefore all thickets and thick forests are sacred because they provide habitat for ancestral spirits (Byers, Cunliffe and Hudak 2001). Furthermore, forests provide medicinal plants which, as discussed in the provisioning services section, play an important role in Zimbabwe’s culture as healers consider their medicinal knowledge a part of their spiritual family heritage (Ngarivhume, et al. 2015).

4. LEGAL FRAMEWORK AFFECTING CONSERVATION

4.1 NATIONAL LAWS, POLICIES, AND STRATEGIES

Zimbabwe has a long-standing legal framework for natural resource management. However, some weaknesses exist in the current legal framework; for example, while the Environmental Management Act (EMA) of 2002 requires Environmental Impact Assessments, the statutory instruments enacted under the Act contain ambiguities and loopholes that limit its effectiveness. Severe challenges also remain in the implementation of the law; key governmental institutions lack resources - both human and financial - to support implementation of projects and programs, and stakeholders note that graft is rampant, particularly at managerial levels.

The key legislative, institutional, and policy frameworks that govern natural resource management in Zimbabwe are outlined in Table 3.

TABLE 3. LAWS AND POLICIES GOVERNING BIODIVERSITY AND FOREST RESOURCE MANAGEMENT

LAW/POLICIES	MAIN THEMES AND PROVISION
Land Apportionment Act of 1930 and Land Tenure	Created the Communal areas on marginally productive land

⁵ A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention. The Ramsar Convention provides for national action and international cooperation regarding the conservation of wetlands, and wise sustainable use of their resources.

TABLE 3. LAWS AND POLICIES GOVERNING BIODIVERSITY AND FOREST RESOURCE MANAGEMENT

LAW/POLICIES	MAIN THEMES AND PROVISION
Natural Resources Act of 1942 (and multiple amendments)	Regulates use of natural resources and administered by the Natural Resources Board. Provides for the establishment of intensive conservation areas in commercial areas. Not applicable on lands without title, such as communal areas.
Forest Act of 1948 (amended 1982)	The Act mandates the Forestry Commission as the Forestry Authority to protect and conserve indigenous forests, and to regulate the harvesting of indigenous trees on private and communal lands. The Act mandates the Forestry Commission in its role as the State Forestry Enterprise to undertake plantation development and sawmilling.
Mines and Minerals Act of 1961	Defines mining allowances in state land tenure allocations. Legal provisions of the Environmental Management Act require that mining projects are subject to full environmental impact assessments and follow environmental monitoring and mitigation plans.
National Parks and Wildlife Act of 1975, amended 1982	Designates ownership of wildlife to owners and occupiers of communal land.
Communal Land Act of 1982, amended 1985	Allocates control of land under the President through the Rural District Councils rather than Chiefs.
Communal Land Forest Produce Act of 1987	The Act vests the commercial utilization of forest products on communal areas in the hands of the Rural District Councils, and allows only subsistence utilization of forest products by local people and communities.
Rural District Councils Act of 1988	Provides for the Rural District Councils to enact by-laws to regulate natural resources use and issue licenses for commercial exploitation of wood products.
National Water Act No.31 of 1998	Provides the legal foundation for the water sector. Establishes authority for time-bound water permits, their administration by catchment councils ⁶ , the polluter-pays principle, allocation of water for environmental purposes, and drought preparedness.
National Water Authority Act No.11 of 1998	Established the Zimbabwe National Water Authority (ZINWA).
Environmental Management Act of 2002	The Act makes provision for regulations to promote the sustainable use of the environment through environmental impact assessment, environmental audits and penalties for those who pollute the environment. With the National Water Act, forbids the cultivation of wetlands and stream banks.
National Development Strategy I (2021-2025)	Consistent with Zimbabwe's goal to achieve an empowered and prosperous society by 2030, President Emmerson Mnangagwa led

⁶ Statutory instrument, SI 33 Of 2000, subdivided the country into seven Catchment areas which are stakeholder driven and seek to manage water resources and the watershed management following the Dublin principles of integrated water resources management. The Catchment Councils produce River System Outline Plans (RSOP) which are further approved by stakeholders and endorsed by the Minister before granting final water permits to water users. The RSOP outlines in detail issues of watershed protection including guidelines on streambank cultivation, riverbank disturbances from alluvial mining, sand abstraction and riverbed cultivation among others. Each Catchment Council and the sub-catchment council have river monitors and hydrologists who monitor and work with stakeholders in ensuring the guidelines are enforced to promote river health in line with the Water Act.

TABLE 3. LAWS AND POLICIES GOVERNING BIODIVERSITY AND FOREST RESOURCE MANAGEMENT

LAW/POLICIES	MAIN THEMES AND PROVISION
	the launching of Vision 2030 to chart a new transformative and inclusive development agenda. Includes the devolution of power and authority over the governance of natural resources.

The National Development Strategy noted above prioritizes improved public sector transparency and accountability, strengthened disaster risk management, and reduction in corruption. “Devolution” – delegating authority and responsibility from the national government to Provincial/Metropolitan Councils and Local Authorities – is outlined in the National Development Strategy and corresponding Vision 2030; devolution involves making the system of governance more citizen-based and decentralized by enhancing community participation in decision-making on local socio-economic and natural resource management issues. Stakeholders will need to observe whether the National Development Strategy is effective or whether it will be hindered by ineffective implementation and corruption, as has occurred with other Zimbabwe NRM policies. For instance, stakeholders note that the Communal Land Forest Produce Act, the Communal Lands Act, and the Rural District Council Act include conflicting provisions and implementation in terms of how communities can use and market forest products.

Zimbabwe's Fifth National Report to the Convention on Biodiversity states that “the country has successfully developed policies and strategies to conserve biodiversity, but implementation of identified actions has been slow due to inadequate financial resources, a lack of technical skills and the need to compromise for accelerated economic development in the case of projects of national strategic importance. Most of the Aichi Biodiversity Targets have been partly achieved. The limited progress in achieving Target 5 – to reduce the rate of loss of natural habitats, including forests, by at least 50% by 2020 – is due to increased stress on natural resources, unsustainable mining activities, limited livelihood options, lack of environmental awareness, the high dependency of the economy on natural resources and rapid urbanization.”

See national NRM-related policies and conservation initiatives in Annex B.

4.2 INTERNATIONAL AGREEMENTS

Zimbabwe has been a signatory to various international treaties, agreements and conventions related to forests and biodiversity. These conventions and agreements are aimed at halting environmental degradation and improving the sustainable use of natural resources. The primary international conventions related to natural resource use and management that Zimbabwe is a signatory to are noted in Table 4.

TABLE 4. INTERNATIONAL ENVIRONMENT CONVENTIONS

INTERNATIONAL CONVENTION	ZIMBABWE'S STATUS (RATIFIED/PARTY)
Convention on International Trade in Endangered Species (CITES)	Ratified
Cartagena Protocol on Biosafety	Party
Convention Concerning the Protection of the World Cultural and Natural Heritage	Party
United Nations Convention on the Law of the Sea (UNCLOS)	Ratified
Vienna Convention for the Protection of Ozone Layer	Ratified

Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal protocol)	Ratified
United Nations Framework Convention on Climate Change	Party
Kyoto Protocol	Ratified
UN Convention on Biodiversity	Party
*Ramsar	Ratified
United Nations Convention to Combat Drought and Desertification	Ratified

*Although the country is not currently listed as a contracting party to Ramsar, stakeholder interviews with Environmental Management Agency staff confirmed that Zimbabwe has ratified the convention. The GOZ is currently working on the accession process.

Zimbabwe also participates in numerous **Regional Multilateral Agreements**, including the following key agreements:

- Great Limpopo Trans-Frontier Conservation Area, which covers Gonarezhou National Park in Zimbabwe; Kruger National Park in South Africa; and Limpopo, Zinave and Banhine Parks in Mozambique.
- Agreement on the Action Plan for the Environmentally Sound Management of the Zambezi River System.
- Protocol on Shared Watercourse Systems in the Southern African Development Community.
- Protocol on Wildlife Conservation and Law Enforcement in Southern Africa.
- Bamako Convention on the Ban of the Importation into Africa of Hazardous Waste.
- Southern African Convention for Wildlife Management.
- Lusaka Agreement on Co-Operative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora.

4.3 GOVERNMENT AGENCIES

The GOZ has several government institutions related to biodiversity conservation. An institution with significant responsibility, the Ministry of Environment and Natural Resources, executes its mandate principally through its departments and parastatals. At the district level, District Development Committees comprised of elected leaders and ministry technical officers are responsible for environmental management. While some of the biodiversity-related policies are strong, weaknesses in this structure can include a lack of coordination among line ministries and parastatals, and limited capacity at the rural district level.

Ministry of Environment, Climate Change, Tourism and Hospitality Industry

- Environment Management Agency
- Parks Wildlife Management Authority
- Department of Environmental and Natural Resources
- The Forestry Commission

Ministry of Lands, Agriculture, Water, Climate and Rural Resettlement

- Agricultural Advisory Services (AGRITEX)

- National Herbarium and Botanic Garden
- Department of Research and Specialist Services
- The Zimbabwe National Water Authority
- The Agriculture and Rural Development Authority
- Fisheries and Aquatic Resources

The Office of the President and Cabinet

- Scientific and Industrial Research and Development Centre
- Research Council of Zimbabwe
- Department of Environment and Climate

Ministry of Local Government, Public Works, and National Housing

- Rural District Councils
- Association of Rural District Councils of Zimbabwe

4.4 CONSERVATION INITIATIVES

Illustrative biodiversity conservation initiatives conducted by multilateral donors are shown in Annex B, Table 11.

5. THREATS TO TROPICAL FORESTS AND BIODIVERSITY IN ZIMBABWE

5.1 DIRECT THREATS TO BIODIVERSITY IN ZIMBABWE

Per the Best Practices Guide, a threat is “a human action or unsustainable use that immediately degrades biodiversity (Kushnir and Martino 2020).” Table 5 below provides an analysis of the most pressing threats to Zimbabwe’s biodiversity in descending order of importance. The Analysis Team sequenced the threats listed below based upon the intensity of the threat, its geographic breadth, and ultimately its imminent impact to biodiversity, as informed by concerns communicated by stakeholders and desk-based research.

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE’S BIODIVERSITY	
THREAT	DESCRIPTION
Unsustainable Agricultural Practices and Expansion	The most highly cited threat during stakeholder consultations, unsustainable agricultural practices and expansion are a significant threat to Zimbabwe’s forests and biodiversity. Employing 60-70% of the population, agriculture contributes approximately 17% to Zimbabwe’s GDP annually (FAO 2021). Contract monoculture (e.g., cotton, tobacco, sugar cane), animal husbandry, and small-holder farms make up the majority of agricultural production. Of Zimbabwe’s 38.7 million ha of total land area, a purported 16.2 million ha, or 41.8%, was used for agricultural purposes in 2018 (including cropland and rangeland) (FAO 2018). From 1990 to 2018, agricultural land in Zimbabwe increased from 13 million ha to 16.2 million ha, peaking at approximately 16.5 million ha in 2008 (FAO 2018). Deforestation from land conversion, water siltation from erosion, water pollution from improper use of agrichemicals, increased incidents of human-wildlife conflict (HWC), and habitat destruction from fires and overgrazing are several of the negative consequences for tropical forests and

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
	<p>biodiversity associated with agricultural production. These anthropogenic threats are compounded by climate change – further discussed both as a direct threat below, and as a driver of threats in section 5.2.</p> <p>Deforestation from land conversion for agriculture accelerated in the wake of Zimbabwe’s fast-tracked land reform policy of 2000, which led to significant forest loss on resettled land. Both small, resettled farms and large-scale commercial farms showed significant rates of loss (6% and 4.5%, respectively) during the first decade of land reform. Non-agricultural land tenure types, such as national parks and safari areas, had losses of under 1% (Underwood, Hahn and Hollander 2020). Consultations and case studies support that the expansion of crop land has generally come at the expense of rangeland and forested areas. In a case study in Nkayi District, the major driver of land cover change from 1990 -2017 was an increase in households that led to woodland clearing for agriculture. Woodland area was reduced 11% during that period (Chirima, et al. 2018).</p> <p>In addition to forests loss, the expansion of crop cultivation and overgrazing intensify water siltation from erosion, which in turn threatens water supplies in a country prone to drought. Overgrazing also leads to changes in the composition and distribution of local plant species.</p> <p>The short-term and long-term effects of pesticides on global biodiversity are not well studied, however it is understood that agrochemical inputs do negatively impact biodiversity (Pesticide Action Network 2018). There is contradicting information on whether the use of pesticides in Zimbabwe is increasing or decreasing. Relative to pesticide use in the 1990s, some sources cite that pesticide application has decreased from 7,000 tons (in 1991) to about 2,000 tons in 2017 (Worldometer 2017). Water pollution, and the subsequent effects on aquatic biodiversity, can be traced to the overuse and misuse of agricultural inputs that are the consequence of unsustainable agricultural practices (Miller and Gwaze 2012). The use of fertilizers and pesticides for agriculture leads to high levels of nutrients which can cause eutrophication and has contributed to the degradation of water quality within Zimbabwe’s lakes (World Bank Water 2014). In Zimbabwe, data on the impact of agrochemical levels are not well known, so the extent of the impact on forest and biodiversity has not been measured (Zimba and Zimudzi 2016). There are additional sources of point and nonpoint sources of pollution in Zimbabwe. The main additional point sources are discharges from industries and mines and untreated or partially treated municipal wastewater discharge (see sections on Mining and Other Extractive Industries and on Urban Expansion).</p> <p>Together with other factors – such as resettlement near protected areas and wildlife corridors, agricultural expansion has led to dramatic increases in human-wildlife conflict (HWC over the past 5 – 10 years. As natural resources available on communal lands have decreased and as water resources have become scarcer, HWC has increased. In addition,, elephant overpopulation has led to increased conflict as elephants search further afield for food and water, disrupting human settlements. HWC is also common with buffalo, hippo, hyenas, lions, wild dogs, and crocodiles. Overall, the expansion of agriculture has caused forest loss and exacerbated issues of land degradation and erosion, pollution, water availability, and HWC.</p>
Mining and Other Extractive Industries	<p>There are over 40 different minerals found in Zimbabwe, in addition to recently prospected oil and natural gas reserves. Minerals with the largest market share include gold, platinum, chromite, coal, copper, nickel, and iron ore. Second to agriculture, mining is the biggest contributors to Zimbabwe’s GDP, making up 16% in 2019 (Ellis 2020). Mining is also one of the leading threats to biodiversity in Zimbabwe. Mining projects are undertaken with limited or insufficient application of environmental and social safeguards, and in some cases are advanced in areas of high biodiversity value. It was only in September 2020 that mining was publicly and officially banned in national parks, after two Chinese coal mining companies were</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
	<p>discovered prospecting in Hwange National Park with permits issued by the Ministry of Mines (Reuters 2020).</p> <p>The sector includes commercial and artisanal small-scale mining (ASM) operations, with most artisanal miners operating in the gold sector. Over 27 tons of gold were exported from Zimbabwe in 2019 – to which ASM contributed 17.4 tons with commercial producers contributing 10.2 tons (International Trade Administration 2020). Artisanal mining directly and indirectly employs an estimated 2 million people (Ncube-Phiri, et al. 2015). Many artisanal miners operate in abandoned or closed commercial gold mines, and the sector is largely informal and poorly regulated. Consequently, ASM has significant environmental impacts that are poorly managed due to the informal nature of the sector. Although there are initiatives underway to formalize the ASM sector in Zimbabwe, the mining sector has a significant way to go to effectively decrease the negative environmental effects of mining on biodiversity.</p> <p>Some environmental impacts with implications for biodiversity include deforestation, over-stripping of overburden, burning of onsite vegetation, siltation and leaching of harmful chemicals (e.g., mercury, cyanide) into nearby watercourses (Ncube-Phiri, et al. 2015). Capacity of the 2,168 dams in the Limpopo basin has fallen by 29 million m³ due to siltation, associated with both mining and erosion from agricultural production, and siltation and pollution of waterways are among major threats to fish species (Ncube-Phiri, et al. 2015) (Ministry of Environment Water and Climate 2014). Since 2015, following the expansion of alluvial mining, acid mine drainage has emerged as a major source of pollution in some of Zimbabwe's rivers (notably the Mazowe, Mupfure, Odzi, and Save rivers) (Ministry of Environment, Water and Climate 2015). Zimbabwe's reserves of valuable minerals – notably lithium, chrome, platinum, diamonds, and gold -- and now potentially oil and natural gas have attracted global attention from Chinese, Australian, South African, and other international extractive industry conglomerates (BBC News 2018, Stevens 2019). Zimbabwe is expected to contribute a significant percent of the global market share of lithium in the coming years as energy-battery industry grows (International Trade Administration 2020). Oil drilling in Zarabani and prospecting for methane are two new extractives sectors for Zimbabwe, which was previously thought not to hold oil or gas reserves (BBC News 2018). The development of commercial scale mines and related infrastructure require denuding the landscape where the mine will be construction, the in-migration of mine workers and associated settlements, and subsequent need for food often leads on an increase in bushmeat hunting. The creation of access roads and mines opens habitat to new and expanding human settlement (Sonter, Ali and Watson 2018). The open-cast mining used for mining a variety of mineral types has resulted in habitat destruction and consequently disruption of animal species (Ministry of Environment Water and Climate 2014).</p>
Overharvesting of Wood	<p>Wood harvesting in Zimbabwe is driven by three primary sources of demand: fuelwood harvesting for domestic use, fuelwood harvesting for drying and curing tobacco, and timber harvesting for sale to international markets. According to the country's Forestry Commission, roughly 330,000 ha of forests are cleared annually, with only 15.6 million ha of forests remaining in Zimbabwe (Moyo, Forests in Zimbabwe 'under siege' Amid Electricity Woes 2019). According to the Commission, Zimbabwe requires 9-11 million tons of firewood each year for domestic cooking and heating (Moyo, Forests in Zimbabwe 'under siege' Amid Electricity Woes 2019). Prior to the late 2010s, charcoal production for domestic energy was not as pervasive a threat to Zimbabwe's forests. Production of charcoal is outlawed in Zimbabwe. However, prolonged rolling blackouts from an unreliable electric grid coupled with high gas prices have created a market for charcoal. There is now evidence that charcoal is growing in popularity, especially in urban centers such as Harare (News 24 2019). The deforestation for fuelwood consumption is worse in urban settings. Rural households often rely on the collection of dead wood for fuel and do not need to resort to</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
	<p>the cutting of whole trees. Fuelwood gathering for urban areas often includes cutting of entire stands in a specific area to reduce transport costs (Joshi 2015).</p> <p>In addition to fuelwood consumption for household use, 1.4 million tons of firewood are gathered annually for tobacco curing (Moyo, Forests in Zimbabwe 'under siege' Amid Electricity Woes 2019). After mining, the tobacco trade is the 2nd largest foreign currency earning product in the Zimbabwean economy, accounting for roughly 10% of Zimbabwe's GDP in 2018 (Reuters 2020) (Chingosho, Dare and van Walbeek 2019). The resettlement program radically altered the nature of tobacco production. The division and redistribution of formerly commercial scale farms led to the increase of small-scale tobacco growers where commercial scale farms had previously operated. From 8,500 growers in 2000 to 73,000 growers in 2016 (Human Rights Watch 2018). Nearly all of Zimbabwe's tobacco production takes place in four provinces: Mashonaland West, Mashonaland Central, Mashonaland East, and Manicaland. From consultations with stakeholders, consumption of fuelwood for tobacco drying is linked to the deforestation of 66,000 ha annually. Weak enforcement of reforestation policies coupled with the high rate of deforestation drives the unsustainable pace of forest loss in Zimbabwe.</p> <p>The illegal timber trade is another pervasive threat to forests in Zimbabwe. Zimbabwe's remaining fourteen protected indigenous forests, which cover 700,000 ha, are often the target of illegal logging. Loggers focus on high value commercial species such as African or Zambezi teak, mahogany, and mukwa trees for sale in international markets, as well as lower commercial value species such as munondo and msasa for construction, fencing, and fuelwood. Illegal timber poachers often engage in illegal bushmeat hunting and poaching as well. The impacts of deforesting these areas include increased soil degradation and erosion, loss of biodiversity in sensitive habitat, loss of climate regulatory and carbon sequestration services, and loss of non-timber forest production capabilities (Sifelani 2017). All remaining protected forests are subject to these pressures to some extent. Particularly sensitive forests of concern – especially as targets for cutting and sale of high commercial value species are found in the Midlands and Matebeleland North provinces, such as the 'Kalahari Sand' forests, where concentrations of teak grow (Environmental Justice Atlas 2014).</p>
Anthropogenic Fires	<p>Veld fires are common in Zimbabwe's predominantly savanna-woodland ecosystems and are often caused by deliberate or accidental human actions. The most prevalent human actions tied to veld fires are for hunting, improving grazing, burning to reduce the fuel load, creation of fire breaks, arson, and smoking out bees during honey harvesting. Farmers with limited machinery or resources to prepare land may set fires, which often spread beyond the area of intended burn. Fires are also tied to cooking, unbanked campfires from safari, throwing away of lit cigarettes, removal of invasive species, waste dumping, from locomotives along some of the major railway lines (e.g. Bulawayo-Victoria Falls) and some traditional practices. Veld fires can be classified by the temperature at which they burn or the intensity. Cool fires typically occur early in the dry season are generally less destructive, whereas higher intensity hot fires occur in the later dry season and are often very destructive (Nyamadzawo, et al. 2013).</p> <p>In 2003, 6.5% of Zimbabwe's land area burned, rising to a high of 12% in 2010, before generally decreasing to a low of 5.5% in 2016 (Underwood, Hahn and Hollander 2020). Data from the Environmental Management Agency (EMA) show that in 2010 when fires were at their peak, Zimbabwe experienced a total of 9,361 fires which destroying 1.2 million ha of land. Mashonaland West province has experienced the most fire of the 10 administrative provinces. Although incidence of fires has been declining since 2010, likely tied to the EMA's increased monitoring, a public media campaign, and increased issuance of fines, the area of damage by fires that do start is still large, and at risk for worsening as a result of climate change (Nyamadzawo, et al. 2013).</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
Wildlife Crime	<p>Wildfires can lead to large-scale changes in ecosystem type by increasing the probability of future incidence by opening forests to drying, exacerbating future vulnerability to burning. Consequently, areas impacted by repeated burns experience worsening biodiversity, in some cases extinction of species, and the permanent conversion of forested areas to grasslands. In addition to the loss of key organisms such as pollinators, decomposers, and other species, fires contribute to animal stress, loss of habitat, shelter, and food (Nyamadzawo, et al. 2013).</p> <p>According to stakeholders, poaching and trafficking in megafauna (e.g., elephants and rhinos) and species of concern (e.g., pangolins) is largely carried out by international syndicates driven by international demand for animal products. Chinese and Vietnamese markets have historically driven the highest demand for illicit goods (International Rhino Foundation 2020). In the last decade anti-poaching and law enforcement efforts to reduce wildlife crime have been enhanced in Zimbabwe. This has been made possible by ensuring that Zimbabwe adopts a robust legal and policy framework that is periodically reviewed to ensure effectiveness e.g. through increased jail time and higher fines for perpetrators. Zimbabwe adopted the Southern African Development Community Law-Enforcement and Anti-Poaching Strategy and developed a National Law Enforcement and Anti-Poaching Strategy. Key amongst these strategies include more boots on the ground, application of technology and drones, canine units for tracking, teamwork and collaboration, as well as intelligence and incentive systems. More importantly there has been an increase in the capacity of wildlife authorities through public-private partnerships with conservation partners and NGOs towards law enforcement which has resulted in a perceived lowering of wildlife crime in Zimbabwe. Three-quarters of pangolin-related confiscations between January – June 2015, for example resulted in the maximum jail sentence for at least one of the offenders in each case (Shepherd, et al. 2016).</p> <p>However, significant incidents from the last decade include nearly \$1 million dollars' worth of Rhino horns (~21kgs) in January 2019 (News 24 2019), killing of over 300 elephants in 2013 in Hwange National Park using cyanide poisoning in water (Greenberg 2015), and 65 pangolin-related seizures from 2010–2015 (Shepherd, et al. 2016). Information related to wildlife crime for other animal species are especially limited.</p> <p>Stakeholders noted concerns that decreased revenue from tourism due to COVID-19 may increase the threat of poaching. However, COVID-19 related travel restrictions have also been attributed to significant reductions in poaching incursions. Maintenance of monitoring of Zimbabwe's rhino population in Bubye Valley, for example, coupled with reduction in poaching led to a 13.8% increase in the black rhino population in the first six months of 2020 (International Rhino Foundation).</p>
Bushmeat Hunting	<p>Bushmeat hunting in Zimbabwe is primarily driven by the need for income generation, food insecurity, and lack of other readily available forms of protein, in addition to traditional medicinal uses of some animals. Particularly in the Southeast Lowveld, bushmeat is hunted for cash and sold domestically in local population centers, where it is popular for its affordability and availability (Lindsey, et al. 2011).</p> <p>Bushmeat hunting in Zimbabwe spiked in the wake of the resettlement program in the 2000s. Unchecked hunting on resettled land led to the near eradication of many animal populations and sharp declines in animal populations on land adjacent to resettled areas. The sable antelope are particularly affected by hunting with dogs as they tend to stand to fight rather than run away, making them more vulnerable to hunters with bow and arrows. In Savé Valley Conservancy, illegal hunting caused the loss of at least US\$1.1 million/year of revenue for trophy hunting and the legal sale of meat. The scale of the threat of bushmeat hunting in savannah biomes is relatively less understood and studied and reflects an ongoing lack of appreciation of the problem and inadequate efforts by state wildlife-agencies and NGOs to address the issue (Lindsey, et al. 2015).</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
Urban Expansion	<p>Urban expansion and unplanned human settlement in protected forests is the result of failed enforcement of existing laws, poor urban planning, and population growth. Urban expansion has contributed significantly to loss of Zimbabwe's wetlands. Environmental groups have raised concerns in recent years over inadequate protection for Zimbabwe's wetlands, especially in Harare. Wetlands cover only 5% of Zimbabwe, but play a critical role in groundwater recharge, water-quality management, and the minimization of erosion. Although construction on Zimbabwe's wetlands is illegal, poor enforcement means developers face few or no consequences for construction on these sensitive ecosystems (Mujuru 2018). In Harare, illegal development of the wetlands that feed into Lake Chivero, Harare's main water source, are likely to contribute to worsening water quality and reduced water quantity over the next decade (Mavhinga 2020). Lake Chivero has already demonstrated 20% reduction in catchment capacity from worsening siltation (Mujuru 2018). In addition, key sources of water pollution include inadequate sanitation, frequent sewer outbursts, and urban runoff, with the most contaminated rivers in the country near catchments with major urban settlements. These impacts typically have a more pronounced effect on human health than on biodiversity.</p>
Climate Change/Drought	<p>Climate change is both a driver of biodiversity loss and a threat (see Section 5.2.6, <i>Climate Change</i>, to see description of the driver). Several climate change impacts have the potential to reduce species numbers and habitat suitability, such as increased temperatures and drought (which can result in water stress) and increased fire risk. While drought and fire do occur in nature, the increased prevalence and severity are widely perceived to be anthropogenic in origin.</p> <p>Climate change is projected to increase water stress due to increased rainfall variability, reduced precipitation, and increased drought. This, combined with higher temperatures, may also intensify wildfire risk. These may result in tree die-off, decreased forest regeneration, and increased forest destruction from wildfires, exacerbating the loss of trees due to firewood harvesting. Temperature changes affect vegetation directly and cause shifts in natural habitat, often towards more desert-like and/or inhospitable conditions for species. Increased temperatures can threaten species already at the upper ends of temperature tolerance thresholds. Drought caused by climate change may also result in water stress and loss of arable land. As a result, farmers may expand their land into forested areas or wildlife habitats, potentially increasing the incidence of human wildlife conflict. Drought could also increase conflicts between humans and wildlife over water resources (U.S Agency for International Development).</p>
Water Infrastructure and Resources Mismanagement	<p>Climate change, as discussed in sections above, is expanding the areas of Zimbabwe that are drought prone. Demonstrative of the interplay between threats, erratic rainfall from a changing climate and poor water management practices have had a direct negative impact on water scarcity in many communities. Worsening dry seasons, typically from September through November, have caused the failure of crops and animal productive systems. Limited adaptation options have exacerbated the reliance on unsustainable livelihood activities along key value chains, leading to land degradation and deterioration of key water sources. Poor land husbandry practices have degraded crucial water resources systems such as wetlands and natural sand dams, which reduces the ability of these resources to provide ecosystem services.</p> <p>The expansion of water-management infrastructure also affects water availability for ecosystems, impacting biodiversity and forests. Zimbabwe's climate is largely semi-arid, and, given the high variability in rainfall, it relies heavily on storage provided by 80 major dams and more than 8,000 impoundments. Of Zimbabwe's stored water, 82% is used by the agricultural sector, 15% is allocated to domestic and industrial users, and 3% is used for mining (International Union for Conservation of Nature).</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
	<p>The storage and release of water by dams, such as for hydropower or water supply, can alter flow patterns and negatively impact downstream ecosystems. For example, operations of Kariba Dam on the Zambezi River have decreased the frequency of connections between river and floodplains wetlands in the downstream Mana Pools National Park (Ekandjo, et al. 2018), affecting regeneration of riparian trees (Chikodzi, et al. 2013), and other ecosystem processes. One study on the Ruti dam in Zimbabwe showed that tree species diversity was affected by dam construction (Chikodzi, et al. 2013). The creation of dams also reduces sediment load in streams and contributes to erosion.</p> <p>Poor land use practices also contribute to issues of water quality and availability. Soils in degraded landscapes erode and lose biodiversity. Hydrologic function of nearby watersheds are diminished, leading to losses in the amount of water and in water quality (Gandiwa and Zisadza-Gandiwa 2015). A case study by the FAO has attributed the siltation of the three main rivers in Ghonerazhou National Park to poor land management practices – including destruction of wetlands, river-bank cultivation, lack of appropriate contouring in fields, overstocking and subsequent overgrazing of livestock, uncontrolled tree removal, and vegetation loss from deforestation and uncontrolled fires (Gandiwa and Zisadza-Gandiwa 2015). Increased siltation results in a range of negative impacts to surface water resources, increasing vulnerability of communities and wildlife to water scarcity and drought, potentially triggering expansion of unsustainable land-use practices. Further, these impacts to freshwater systems also degrade aquatic and terrestrial biodiversity (Moyo, Stream-bank Cultivation and Gold Panning add to the Problems 2021).</p> <p>Beyond siltation, several other drivers contribute to the degradation of Zimbabwe’s surface water resources, including excessive use of agrochemicals, untreated discharge of industrial waste and sewage, as well as pollution from mining. The decline in water quality negatively impacts fish and wildlife. Waterfowl and reptiles have begun to decline precipitously from pollution, particularly near urban centers such as Harare.</p> <p>Overfishing also contributes to biodiversity loss in Zimbabwe’s aquatic ecosystems. Lake Kariba, Lake Chivero, Lake Manyame, Lake Mutirikwi and Mazvikadei dam represent the country’s five most important commercial fish stocks. Both the pelagic and artisanal Lake Kariba fisheries have historically provided approximately 90% of Zimbabwe’s fish production. Limited fisheries stocks, and the rising price of protein sources, have led demand for fish, especially the Kapenta, to exceed the supply (The Food and Agriculture Organization of the United Nations 2007). From 1970 to 2013, trends in catches of Kapenta, or Lake Tanganyika sardine from Lake Kariba, show a decline due to overfishing (Ministry of Environment, Water and Climate 2015).</p>
<p>Invasive Species and Disease</p>	<p>While no comprehensive data on invasive plant and animal species are available for Zimbabwe, over 150 invasive alien species (IAS) have been identified posing a threat to the productivity of croplands, grazing land, forests, and aquatic ecosystems alike. The red claw crayfish, largemouth bass, and the Nile tilapia are three IAS that pose a threat to aquatic biodiversity and commercial fishing (Ministry of Environment, Tourism, and Hospitality Industry 2020). High pollution levels impacting native aquatic flora and fauna have left Zimbabwean waterways vulnerable to the spread of aquatic invasive plants such as Nile cabbage, water hyacinth, and Kariba weed (Ministry of Environment Water and Climate 2014).</p> <p>The Southern African Region, Zimbabwe included continues to face several emergent threats that pose serious risks to food security. The fall armyworm (FAW), which is thought to have migrated from the Americas to Southern Africa ravages the region’s main staple crops, including maize, wheat, millet, and rice. It feeds in large numbers on leaves and stems of more than 80 plant species, causing major damage (Food and Agriculture Organization of the</p>

TABLE 5. PRIORITIZATION OF DIRECT THREATS TO ZIMBABWE'S BIODIVERSITY

THREAT	DESCRIPTION
	<p>United Nations 2017). Locusts are yet another type of insect that cause severe damage to crop, and livestock pastures, threatening food security. Most recently, in 2020 swarms and hoppers of African Migratory Locusts (AML) had initially infested two sites Chiredzi District and moved into Manicaland Province (FAO Regional Office for Africa 2020). The presence of FAW and locusts can lead to increased need for pesticides, incorrect application of which can negatively impact biodiversity as discussed in the “Unsustainable Agricultural Practices and Expansion” section above.</p> <p>Fast-growing exotic tree species such as pine, black wattle, wild sage, strawberry guava, guava, gum trees (Eucalyptus), black poui, white cedar and cypress are prevalent in the Afromontane forests, grasslands, miombo woodlands and streambanks. <i>Lantana camara</i>, has been noted as particularly harmful to the native vegetation in Gonarezhou National Park, and black wattle is a threat to the grassland diversity and avifauna in Nyanga National Park (Ministry of Environment, Tourism, and Hospitality Industry 2020). <i>Opuntia fulgida</i> has reduced the quality of rangeland for grazing animals and has also contributed to an increase in small livestock mortality through impaired mobility caused by the plant’s thorns (Ministry of Environment Water and Climate 2014).</p> <p>In addition to IAS, recent elephant die-offs in Zimbabwe (and neighboring Botswana) are warning signs of increased prevalence of disease. These die-off events, caused by ingesting cyanobacteria, naturally occurring in standing water, may become more common as a warming climate produces more favorable conditions for these types of outbreaks (BBC News 2020). In addition to these types of outbreaks, zoonotic diseases which normally occur in wildlife populations are also likely to increase, exacerbated by narrowing areas for wildlife, increasing interactions with human populations, and many of the human actions discussed above.</p>

5.2 DRIVERS OF THREATS

Per the Best Practices Guide, a driver is a “constraint, opportunity or other important variable that positively or negatively influences direct threats.” There are many factors driving the threats identified above, but the most significant and influential drives in the country are as follows:

- Poverty, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth
- Institutional and Economic Failures
- Corruption and Patronage
- Insecure Land Tenure and Inconsistent Execution of Land Reform
- Poor Governance Capacity and Lack of Political Will to Enforce Existing Laws
- International Demand for Natural Resources
- Climate Change
- Growing Energy Demand
- International Demand for Natural Resources
- Lack of Mapping and Other Critical Data Inputs

Each of these drivers are interrelated and affect numerous threats.

5.2.1 POVERTY, RELIANCE ON UNSUSTAINABLE LIVELIHOODS, FOOD INSECURITY, AND POPULATION GROWTH

The interplay of poverty, population growth, food insecurity and reliance on natural-resource-intensive livelihoods are driving biodiversity loss in Zimbabwe. Almost 26% of Zimbabweans experience multidimensional poverty,⁷ with high proportions of the poor (80%) residing in rural areas (Ministry of Environment, Tourism, and Hospitality Industry 2020). (United Nations Development Programme n.d.) Food insecurity is a driver of bushmeat consumption and hunting. Further, worsening climate conditions and drought have driven raising unemployment. In one study conducted in Mzingwane District a sharp decline in subsistence agriculture has forced many households to diversify into gold mining along the along the Insiza and Umzingwane rivers. Consequently, the poor as both the victims and agents of environmental degradation have been forced to engage in environmentally detrimental activities to meet survival needs (Ncube-Phiri, et al. 2015).

With 68% of the country's population living in rural areas and greater prevalence of poverty among the rural population, Zimbabweans often rely on the exploitation of natural resources for livelihoods (Ministry of Environment, Tourism, and Hospitality Industry 2020). Most of the country's poor have limited opportunities outside subsistence farming. Other natural-resource-intensive livelihoods that negatively affect biodiversity conservation are discussed in the direct threats sections above, and include deforestation for energy production and commercial sale, mining, and hunting, among other livelihoods. Agriculture and mining are two dominant sectors that in 2010, accounted for roughly 30% of GDP. Prior to 2012, agriculture was the biggest contributor to GDP, total exports, and employment creation, and at its peak it contributed over 30% to GDP, while accounting for between 60% and 70% of employment (Ministry of Environment, Tourism, and Hospitality Industry 2020).

5.2.2 INSTITUTIONAL AND ECONOMIC FAILURES

Several economic collapses in Zimbabwe over the last two decades have pushed the economy towards unsustainable livelihoods as discussed in the driver above (Kingsley and Moyo 2019). These ongoing economic crises can be tied to run-away inflation; loss of employment; frequent electrical grid blackouts; and water, fuel and medicine shortages. These economic hardships have not only led to scarcity of services such energy, water, and fuel but have also driven unemployment – experts and studies do not share a consensus regarding precise figures, however a 2009 estimate put the national unemployment rate of Zimbabwe at 95%, not accounting for informal employment (Joshi 2015). As a result, urban Zimbabweans have been migrating back to rural areas, often to seek employment in the informal economy. Economic hardship has forced Zimbabweans to rely on livelihood activities such as cutting trees for firewood and charcoal, timber, and wildlife poaching, bushmeat hunting, clearance of forests for farming, and increases in artisanal mining (Moyo 2015, Ministry of Environment, Tourism, and Hospitality Industry 2020).

As articulated in the 6th National Report to the Convention on Biological Diversity, not only is the economic performance in Zimbabwe based on the exploitation of natural resources, but the country's future economic development also depends, directly and indirectly, on the sustainable management of natural resources (Ministry of Environment, Tourism, and Hospitality Industry 2020). Simply put, the

⁷ Multidimensional poverty is defined as a percentage of the population experiencing a deprivation score of at least 33% in calculations based on health, education and standard of living data.

continued unsustainable use of natural resources, driven by economic failure, endangers sustainable economic development of the Zimbabwe.

5.2.3 CORRUPTION AND PATRONAGE

Zimbabwe ranks 157 of 180 countries ranked as part of the Corruption Perceptions Index and scores a 24 out of 100, with 0 being highly corrupt and 100 not at all corrupt (Transparency International 2020). The report “Cartel Power Dynamics in Zimbabwe” (published in January of 2021) estimated that Zimbabwe may lose up to half the value of its annual GDP (\$21.4 billion) due to corrupt economic activities, either directly or indirectly through collusion, price fixing and monopolies that lead to the suffocation of uncorrupted economic activity (Heywood 2021). Despite pledges to crack down on corruption by the new administration in 2018, evidence of continued patronage politics indicate that little has changed.

The natural resources management sector is heavily implicated in corruption and the patronage system in Zimbabwe. A recent study found that collusion in Zimbabwe most often occurs between the private sector and political elites with the intent to monopolize benefits from a sector or resource, and stifle competition (Heywood 2021). A 2020 report by the International Crisis Group estimates that \$1.5 billion worth of mined gold is smuggled annually, and Global Witness reports billions of dollars of diamonds are unaccounted for (International Crisis Group 2020). Similarly, reports have linked political elites to many of the sawmills used in the processing of deforested Zimbabwean hardwood from remaining indigenous forests (Moyo 2015). Consultations with stakeholders also revealed that the patronage system is a significant player in land tenure systems – it is not uncommon for land concessions to be gifted, whether for resource extraction (e.g. mining) or for conversion for commercial purposes (e.g. construction on wetlands).

5.2.4 INSECURE LAND TENURE AND INCONSISTENT EXECUTION OF LAND REFORM

Land tenure insecurity tied to Zimbabwe’s resettlement policies contributes to the ongoing exploitation of natural resources for livelihoods. Two land tenure systems are codified in Zimbabwean law, freehold (private) and state land, under which communal and leasehold (resettlement) lands are included. At independence, approximately 4.3 million black communal farmers had customary rights to 49% of Zimbabwe’s arable land. 6,000 white large commercial land holders had freehold rights to 47% of the land, and an additional 8,500 black small-scale commercial farmers had rights to the remaining 4% of arable land (Miller and Gwaze 2012). The 2000 resettlement program led to the government acquisition and redistribution of 10 million ha from large, commercial freeheld farms to resettled lands.

By reclaiming and redistributing formerly freeheld land as state land both the small-holder resettled farmers and the remaining commercial farmers fear eviction under the land reform policy. Further, given the quick, poorly executed, and often violent resettlement of commercial farms in the early 2000s, those who have acquired land under this program also lack security (Miller and Gwaze 2012). Many resettled persons worry about the legitimacy of their land rights and given the legal status of resettled land as inheritable but government owned. Insecure land tenure, coupled with poverty, drought, and poor farm management exacerbate reliance on many of the natural-resource-intensive livelihoods described under the direct threats (section 5.1) analysis. Consultations with stakeholders confirm that insecure tenure has also led to low investment in natural resource management and preservation. Lack of landownership has perverted incentives to maintain and restore degraded lands.

In addition to tenure insecurity, the resettlement program resulted in the precipitous decline in agricultural productivity, exacerbating economic stagnation, poverty, and contributing to overall food

insecurity. 10 million ha of land resettled by new owners, many of whom were unfamiliar with farm management, sustainable agricultural practices, or lacked familiarity with the agro-ecological zone on which they had been settled. Consequently, farmers began to establish fields on riverbanks for proximity to reliable water resources, and to clear forested land for the cultivation of maize (Miller and Gwaze 2012). Additionally, overall decline in agricultural productivity led to significant consequences for wildlife due to hunting and the degradation of habitat.

5.2.5 POOR GOVERNANCE CAPACITY AND LACK OF POLITICAL WILL TO ENFORCE EXISTING LAWS

The GOZ entities with the authority to manage and conserve natural resources are constrained by inadequate financing and limited institutional and human capacity. As evidenced by Section 4, Zimbabwe has in place significant environmental legal frameworks, however, the prioritization of economically productive sectors, coupled with lack of enforcement of existing laws, hinders biodiversity conservation. Failure and inability to enforce existing laws promotes overreliance on the country's finite and overburdened natural resources. Although the penalty for damaging, destroying, or otherwise removing timber without a license is 100 Zimbabwean dollars or 2 years imprisonment, poor enforcement of the Forest Act provides little incentive for tree harvesters to cease cutting trees (Moyo 2019).

An analysis of institutional capacity needs to effectively implement environmental laws found a range of needs from staff expertise,⁸ to the creation of systems such as the accreditation of Environmental Impact Assessment practitioners. High staff turnover at the Central Statistics Office, for example, also hinders Zimbabwe's ability to collect, analyze, and disseminate information. Inter-ministerial coordination capacity is low, and has led to, competing land concessions. The analysis, conducted by the Southern African Development Community, highlighted seven key cross-cutting capacity constraints. Several of these capacity gaps, also highlighted during stakeholder consultations, include, involving national stakeholders in addressing environment and sustainable development issues; mainstreaming environmental sustainability into the Zimbabwe's economic and social development; and building staff skills and motivation to address social and environmental development challenges (Christopher, et al. 2012). In addition to lack of capacity, lack of political will to reduce elite capture of revenues obtained through existing patronage systems is a significant problem. This system of patronage associated with many industries but including natural resource extraction reduces the overall effectiveness of existing ministries and government entities.

5.2.6 CLIMATE CHANGE

Zimbabwe is highly vulnerable to the adverse impacts of climate variability and change, which is already affecting the physical and biological characteristics of its critical ecosystems and biodiversity. In particular, the country is highly vulnerable to variable rainfall; even small changes in rainfall can have critical impacts on Zimbabwe's ecosystems. Impacts to date include reduced water resources, declines in terrestrial and aquatic habitats, and species death, particularly for large herbivores (Kupika, et al. 2018), due to increased rainfall variability, higher temperatures, and extreme events such as droughts and floods (Government of Zimbabwe 2015). Climate change is projected to exacerbate impacts to biodiversity and ecosystems due to increases in annual average temperature and the number of hot days, more variable precipitation, increased rainfall in the north and east and decreased rainfall in the south

⁸ In fields such as policy analysis, coordination and collaboration, accountability (environmental governance), research, information management and monitoring systems, to infrastructure, equipment, and facilities

and west, longer dry spells, and increased incidence of severe drought (U.S Agency for International Development 2020).

Climate change is expected to alter rainfall patterns, reduce river and stream flows, and result in more dry spells and droughts, decreasing the availability of freshwater resources. Rainfall is already variable across most of the country (except in the eastern highlands) and past drought and rainfall variability have caused water levels to fluctuate in Lake Kariba (U.S Agency for International Development 2020). Runoff, which is sensitive to rainfall variability, contributes 90% to Zimbabwe's water supply, which consists mostly of surface water resources (Government of Zimbabwe 2012) (U.S Agency for International Development 2021); thus, further variability due to climate change is likely to have significant impacts. Climate change is projected to result in decreased annual rainfall in all river catchments except Mazowe and Manyame, with the largest declines occurring in the Runde and Mzingwane catchments. These declines in rainfall may result in decreased recharge rates for wetlands and aquifers (Brazier 2018), as well as leave less water allocated to environmental flows from existing dams. Additionally, recurrent droughts, rising temperatures, and high evaporation rates may shrink water bodies and reduce fishing stock, particularly in wetlands which form nursery grounds for fishery resources (Government of Zimbabwe 2015). Drought also decreases aquatic habitat available for water-dependent species such as hippos and threatens water birds, such as pelicans, plovers, storks, and fish owls, who rely on river systems (Kupika, et al. 2018).

Climate change impacts on terrestrial biodiversity and ecosystems include increased temperature and water stress, and fire risk. Zimbabwe has high floral biodiversity with over 4500 vascular plant species, over 200 of which are endemic and over 500 of which are on the IUCN red list (Government of Zimbabwe 2012). Plants in Zimbabwe are sensitive to temperature and rainfall, particularly in the drier (southern and western) parts of the country; the eastern highlands and central regions have more adaptive capacity due to higher rainfall. Due to plant sensitivity to temperature and rainfall changes, plant diversity is expected to decline by 2080, and areas of high plant diversity will shrink. Biodiversity loss is expected to be greatest in non-protected areas, like communal and resettlement areas.

Most vegetation in Zimbabwe consists of savannah woodland interspersed with open grassed drainage lines and wetlands. Veldt fires will result in losses of grasslands and lower the ability of ecosystems to provide goods and services (Government of Zimbabwe 2015). Forests in Zimbabwe, which cover 45% of total land area and are home to 1,103 amphibians, bird, mammals, and reptiles, also face climate change threats. Miombo woodlands, Zambezi teak forests, mopane woodlands, and others are vulnerable to water stress from recurrent droughts, flooding, and variable and reduced precipitation (U.S Agency for International Development 2020). These climate stressors are likely to shift forest boundaries and species composition, affect growth rates and migration, result in loss of vegetation cover, and increase the frequency and intensity of forest fires (Government of Zimbabwe 2015). Climate change effects on vegetation and forests in Zimbabwe will also have impacts on animals. Case studies in Zimbabwe's national parks have found that increased drought results in decreased populations of large herbivores, such as elephants, buffalo, hippo, and large antelopes, who have low capacity to resist drought. Selective grazers are particularly vulnerable. This affects predator-prey interactions, such as by forcing carnivores to feed more on livestock in place of herbivores and can disrupt the ecological range of different species (Kupika, et al. 2018).

5.2.7 GROWING ENERGY DEMAND

Chronic electricity cuts, rising electricity costs, climate-change-induced water shortages at Kariba dam, and a growing population are factors contributing to Zimbabwe's ongoing energy challenges (Moyo 2019). Zimbabwe has a domestic energy production capacity for 2,240 megawatts, generated by the Kariba dam and four coal-fired generators (Emi 2020). Approximately 40% of the population has access to electricity (International Renewable Energy Agency 2017). Zimbabwe Electricity Supply Authority (ZESA) is the state-owned energy utility. Plagued by poor infrastructure, maintenance issues, erratic supply, and inadequate financing to import power, Zimbabweans with access to electricity often face power cuts (Joshi 2015) (Moyo 2015). Paired with an increasing population and only 40% electrification, a shortage of electricity in Zimbabwe contributes to reliance on fuelwood and charcoal, which is a driving force behind deforestation (Joshi 2015). Urban households, supplied with electricity through ZESA, purportedly consume 1 – 4 tons of fuelwood annually, with rural households requiring 2 – 8 tons annually (Moyo 2019).

5.2.8 INTERNATIONAL DEMAND FOR NATURAL RESOURCES

International demand for natural resources includes mined goods, timber, and wildlife products. Chinese and Southeast Asian markets are the destination for products such as pangolin, elephant ivory, and rhino horns. Reliable and recently gathered information on the scale and scope of trafficked wildlife products from Zimbabwe to international markets is not readily available, however, increasingly harsh sentences for offenders caught in the illegal wildlife trade, coupled with reduced travel due to COVID-19 may have slowed the flow of wildlife products to international markets. As with demand for animal products, relatively little information is available regarding the demand for timber on international markets. Consultations with stakeholders indicated that demand for high value species such as Zambezi teak have driven deforestation in Zimbabwe's remaining indigenous forests. Anecdotally, markets for these products include South Africa and China. International demand for mineral resources and hardwood timber species such as Zambezi teak are also diving factors behind biodiversity loss in Zimbabwe. The Chinese are major shareholders in Zimbabwe Mining and Alloy Smelting Company, one of the country's largest chrome mining companies, as well as investors in the coal, gold, platinum, and diamond mining industry (Chinembiri 2020). Recent interest in the development of lithium deposits has attracted Australian and Chinese mining interest, with lithium demand expected to growth substantially as markets for electric vehicles expand globally (Stevens 2019).

5.2.9 LACK OF MAPPING AND OTHER CRITICAL DATA INPUTS

In a 2012 assessment of the GOZ's capacity to enforce existing environmental legislation and policies, several of the cross-cutting needs centered on the collection, management and exchange of information and data (Christopher, et al. 2012). Conversations with stakeholders and extensive research to inform this analysis revealed significant gaps in the biodiversity, natural resource, and ecosystem services data available. Sources indicate that information on a variety of biodiversity related issues are either outdated or unavailable. Examples of data gaps from research conducted for this analysis include long-term data on siltation of major rivers (Gandiwa and Zisadza-Gandiwa 2015) (Moyo 2021), detailed species population information to inform annual hunting quotas (Ministry of Environment Water and Climate 2014), current information on wildlife and timber poaching and trade, and data related to the expansion of artisanal gold mining, which has boomed due to loss of formal employment opportunities and with the rising price of minerals (Underwood, Hahn and Hollander 2020).

6. ACTIONS NECESSARY TO CONSERVE AND PROTECT TROPICAL FORESTS AND BIODIVERSITY

This section proposes the actions necessary to effectively conserve and protect tropical forests and biodiversity in Zimbabwe. The Analysis Team believes these actions are necessary to realize sound and sustained conservation and management of Zimbabwe’s extensive tropical forests and biodiversity. The actions are divided into three tiers: highest priority, high priority, and additional actions necessary. This Analysis identifies actions necessary to strengthen conservation within Zimbabwe for any potential actor. These actions necessary, as shown in Table 6, directly inform the analysis conducted in Section 8 which guides programming recommendations for USAID/Zimbabwe developed in Section 9.

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
TIER 1: HIGHEST PRIORITY		
ACTION 1: STRENGTHEN THE CAPACITY OF GOVERNMENT, CIVIL SOCIETY, AND COMMUNITIES TO MANAGE NATURAL RESOURCES		
<ul style="list-style-type: none"> • <u>Strengthen capacity of government forest and wildlife management services in the planning, design, and implementation of biodiversity conservation interventions and tropical forest management.</u> • Assist building and strengthening GOZ institutional relationships with international and local civil society organizations to create an enabling environment for safeguarding natural resources. • Enhance coordination amongst international cooperation agencies during planning, design, and implementation of biodiversity conservation interventions; such efforts can facilitate the pooling and/or utilization of resources, improve complementarity of programming, and ultimately help achieve greater efficiency and more sustainable results. • Increase governmental, non-governmental, and community-level capacity and awareness on existing land rights and regulations, and opportunities for increased community empowerment and land ownership, with particular attention paid to raising awareness on and addressing associated gender-based inequities in land tenure, use, and management planning. <ul style="list-style-type: none"> ○ Effectively build capacity through a combination of workshops and trainings, with provision of equipment and techniques, on the community level, to empower communities to take more effective 	<ul style="list-style-type: none"> • Insecure Land Tenure and Inconsistent Execution of Land Reform • Poor Governance Capacity and Lack of Political Will to Enforce Existing Laws • International Demand for Natural Resources • Poorly, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth 	<ul style="list-style-type: none"> • Unsustainable Agricultural Practices and Expansion • Mining and Other Extractive Industries • Overharvesting of Wood • Anthropogenic Fires • Wildlife Crime • Bushmeat Hunting • Water Infrastructure and Resources Mismanagement • Invasive Species and Disease

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<p>action in reducing corruption and directly enforcing environmental protections.</p> <ul style="list-style-type: none"> • Empower communities and local authorities by involving these key stakeholders in the design and implementation of NRM initiatives. • Support existing civil society actors and non-governmental organizations with their work on biodiversity protection. • Increase availability of financial and technological resources to support effective biodiversity conservation interventions and tropical forest management. For example, GOZ investment in or donor provision of equipment (e.g., smartphones, drones), vehicles, and other essential tools. • Increase coordination with the international donor community on conservation, disaster resilience, and NRM initiatives. • Strengthen delivery of technical assistance by GOZ, development partners, and civil society on livestock best management practices to improve productivity of, reduce land use conflict around, and encourage quality-over-quantity approach to livestock handling and rangeland management. Such technical assistance could include the following: <ul style="list-style-type: none"> ○ Training for cattle owners and herdsman on best management practices in grazing area management. ○ Assistance in the development of localized land use and spatial plans that incorporate the establishment and demarcation of dedicated grazing corridors, as well as provision of water points for cattle grazing and watering. 		
<p>ACTION 2: STRENGTHEN NATURAL RESOURCES AND LAND USE GOVERNANCE (REGULATION, ENFORCEMENT, AND ACCOUNTABILITY) AT THE NATIONAL, REGIONAL, AND LOCAL LEVELS</p>		
<ul style="list-style-type: none"> • Develop and support participatory community surveillance and monitoring mechanisms to oversee industry non-compliance with environmental regulations, unlawful displacement, and/or inadequate compensation, and implement formalized grievance mechanisms to transparency report violations. • <u>Increase the transparency of funds collected, managed, and distributed for local governance</u>; increased transparency should ensure communities understand the amount of funding collected for use by their governance bodies, and how the funds are ultimately used. 	<ul style="list-style-type: none"> • Insecure Land Tenure and Inconsistent Execution of Land Reform • Corruption and Patronage • Poor Governance Capacity and Lack of 	<ul style="list-style-type: none"> • Unsustainable Agricultural Practices and Expansion • Mining and Other Extractive Industries • Overharvesting of Wood

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<ul style="list-style-type: none"> • Develop and enforce regulations that address key gaps in existing legal frameworks (e.g., land tenure process). • Support implementation revised environmental laws, regulations, and national plans, including clarifying ambiguity of institutional mandates and responsibilities pertaining to NRM. • Strengthen forest governance through the effective implementation of legal and regulatory texts to reduce and offset deforestation. • Support systematic application of environmental assessments for major development activities (e.g., mining, agriculture). Systematic application of environmental assessments must be supported by sufficient capacity for robust oversight and enforcement. • Introduction of a rationalized wetlands management regime that clarifies responsible actors for oversight, strengthens protections and penalties for violation, empowers enforcement of wetland areas, and prevents urban development in/near wetland areas. • Facilitate coordination between GOZ, private sector, and development partners working together to strengthen NRM enforcement with a focus on (1) surveillance capacity in mining, agriculture, and forestry sectors and (2) reduction in political interference: <ul style="list-style-type: none"> ○ Direct engagement between GOZ, development partners, and (as relevant) private sector to develop strategy and implementation plans for addressing existing challenges presented by illegal and/or poorly implemented mining activities. ○ Strengthened enforcement—inclusive of equipment and training for enforcement officers—to prevent or reduce environmentally degrading activities (e.g., agriculture, mining) in protected areas and sensitive ecosystems. • To the extent feasible, <u>develop integrated land-use and water-resource management plans, coordinated across national, sub-national, and local levels of governance</u>. These plans should account for the following: <ul style="list-style-type: none"> ○ Population growth and livelihood zones. ○ Agricultural development priorities and objective. ○ Land tenure, concessions, and legal framework. ○ Existing protected areas, ecologically sensitive areas in/around 	<p>Political Will to Enforce Existing Laws</p> <ul style="list-style-type: none"> • Institutional and Economic Failures • International Demand for Natural Resources • Growing Energy Demand 	<ul style="list-style-type: none"> • Bushmeat Hunting • Urban Expansion • Water Infrastructure and Resources Mismanagement

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<ul style="list-style-type: none"> protected areas (e.g., buffer zones), priority wildlife/biological corridors, and ecologically importance areas that may require protection. <ul style="list-style-type: none"> ○ Areas prioritized for ecosystem restoration/recovery, as part of broader reforestation and other ecosystem restoration plans. • Identify areas of intense land degradation and work to address threats in those areas. • Encourage the development of communal, clan, or other community managed NRM areas (e.g., community managed forest reserves). • Develop incentives to reduce corruption, patronage, and rent-seeking behavior in the management of natural resources. 		
<p>ACTION 3: INCREASE AVAILABILITY AND QUALITY OF EDUCATION AND RESEARCH INITIATIVES TO ADDRESS EXISITING GAPS IN AVAILABLE BIODIVERSITY DATA</p>		
<ul style="list-style-type: none"> • <u>Train staff in government, civil society, or through university study (in Zimbabwe or abroad) to collect biodiversity data to fill gaps in available information.</u> <ul style="list-style-type: none"> ○ Increase investment in training for terrestrial biologists and taxonomists to enhance ability for academia and/or civil society to conduct inventories of wildlife resources, in turn enhancing ability to design spatial plans that properly account for biodiversity protection and management. • “Conduct spatial analyses and modeling for key species. For example, identifying intact blocks of habitat at the regional scale that might provide movement corridors for species between protected areas, thereby highlighting priority areas for interventions such as human-wildlife conflict mitigation” (Underwood, Hahn and Hollander 2020). • Educate in-country experts and researchers to better inform governments and management policies. Provide long-term support to universities, research centers, and individual scientists, potentially via protected areas. • Incorporate conservation themed exercises and curricula into all levels of education (e.g., agricultural education focused on climate smart and good agricultural practices; reading and literary content discussing the value of Zimbabwean biodiversity). • Strengthen quality and broaden availability of environmental education and 	<ul style="list-style-type: none"> • Lack of Mapping and Other Critical Data Inputs • Poor Governance Capacity and Lack of Political Will to Enforce Existing Laws • Institutional and Economic Failures 	<ul style="list-style-type: none"> • Unsustainable Agricultural Practices and Expansion • Mining and Other Extractive Industries. • Overharvesting of Wood • Urban Expansion

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<p>science and technology training focused on biology, ecology, and related disciplines relevant to biodiversity.</p> <ul style="list-style-type: none"> • Increase research opportunities for disciplines relevant to biodiversity (e.g., ecology, biology, zoology, and other environmental and ecological sciences) to improve capacity to properly monitor, manage, and conserve natural resources and ecosystem health and to increase key data on biodiversity and forests. • Support education of legal rights pertaining to land tenure and increase community access to the resources needed to formalize traditional tenure arrangements. • Support the development of a reliable and publicly accessible database of natural resource/biodiversity conservation related geospatial data (e.g., areas of commercial agricultural production, endangered species habitats), as well as consolidation and maintenance of existing conservation management data into centralized databases. <ul style="list-style-type: none"> ○ Conduct further analysis of ground cover with finer resolution imagery and at multiple time steps (Underwood, Hahn and Hollander 2020). • Develop targeted strategic communications tools and behavior change techniques to enhance uptake of sustainable management practices across households (e.g., subsistence agriculture, herding), communities, and prefectures (land use, water use, and related resource management planning) and/or private sector (e.g., commercial agriculture, extractive industries, tourism). • Conduct the environmental analyses necessary to guide the setting of priorities for environmental recovery, resource management, and sustainable use planning. A sampling of these assessments may include current status of ecosystems, tropical forests, genetic diversity, collection of local and national geospatial data, the <u>management status of existing protected areas, species counts.</u> • <u>Prioritize and preserve indigenous knowledge in medicinal plants and land management systems.</u> • Fund research opportunities for the collection of data on the status of ecosystems, species, and other natural resources to fill gaps in existing information. Current gaps that would benefit from additional research include, but are not limited to the following: <ul style="list-style-type: none"> ○ Build on and utilize data compiled by ZELA and the International Peace and 		

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<p>Information Service to promote research on the impacts of mining activities on ecosystems (e.g., mapping of legal and illegal mining activities, water and soil quality as well as fish tissue in areas likely affected by chemicals used during mining). Further research into the extent of mining impacts on ecosystems.</p> <ul style="list-style-type: none"> ▪ Prioritize expanding data for artisanal gold mining to account for the recent exponential growth of the sector. ○ Compile data on agricultural production and the contribution healthy forests and woodlands can make to cultivation (e.g., cultivation in close proximity can benefit from moisture provided by forests, increased pollination, soil fertility). ○ Devote resources to assure implementation of pesticide registration policies including ensuring quality of formulations in the market, use of pesticide in accordance with the approved label, and national environmental monitoring programs that aim to track influence of pesticide applications on surface water and groundwater quality and to determine the occurrence of pesticides in sediment, air, precipitation and biota. ○ Conduct additional analysis of fire patterns at regional and local scales. ○ Improve data on tourism and recreation (including estimated travel costs of tourism and the annual revenue generated from nature-based tourism) to improve the collective understanding of cultural services provided by natural areas (Underwood, Hahn and Hollander 2020). 		
<p>ACTION 4: BUILD CAPACITY ACROSS LOCAL LEVELS OF GOVERNMENT AND COMMUNITIES – IN CONCERT WITH DEVOLUTION POLICIES – TO SUPPORT BIODIVERSITY CONSERVATION</p>		
<ul style="list-style-type: none"> • Deliver targeted capacity building, focused in the following areas and audiences: <ul style="list-style-type: none"> ○ Engage with park ranger forces, police, judges, and communities in/around sensitive ecosystems on protected area enforcement and oversight, and criminal investigation and prosecution (e.g., of wildlife and environmental crimes) consistent with Zimbabwean laws and CITES. ○ Build community-level capacity (community patrols, local government financing, management, and oversight) for monitoring, compliance, and enforcement of natural resource laws and policies 	<ul style="list-style-type: none"> • Poor Governance Capacity and Lack of Political Will to Enforce Existing Laws • Institutional and Economic Failures • Corruption and Patronage. • Insecure Land Tenure and Inconsistent Execution of Land Reform 	<ul style="list-style-type: none"> • Mining and Other Extractive Industries • Overharvesting of Wood • Wildlife Crime • Bushmeat Hunting • Climate Change/Drought • Invasive Species and Disease

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<p>(e.g., reducing illegal and unsustainable natural resource harvesting practices). Such capacity building efforts would be maximized if done in active coordination with technical assistance and planning for sustainable livelihoods (Action 5) and strengthened rural land tenure (Action 2).</p> <ul style="list-style-type: none"> ○ Improve the collection, use, and sharing of relevant data with key stakeholders, particularly on wildlife populations. ○ Disseminate regulatory information on a regular basis to ensure the public knows their rights, laws, and penalties associated with infractions, and the roles and responsibilities of law enforcement agents. <ul style="list-style-type: none"> ● Increase financial and human resource investment in protected areas and forest administration, increase workforce training for civil service on sustainable natural resource management, and invest in additional equipment and infrastructure to enable more effective monitoring and surveillance (e.g., training for and hiring of additional park rangers; procuring vehicles, radio communication devices, and drones; developing new or renovating existing access/patrol ways. ● Support environmental jurisprudence and judicial outcomes that increase accountability for environmental/wildlife crimes. ● Strengthen capacity of decentralized governance structures at the subnational and district levels on financial management and planning to account for, and incorporate, localized economic development objectives in a manner compatible with management of protected areas that fall near their jurisdictions. ● Facilitate cross-sectoral coordination across governance levels (national, prefecture, and local) and stakeholder groups (government, non-governmental, civil society, and private sector) to clarify mandates, roles, and opportunities for engagement in management of protected areas. This must be done in a manner consistent with land use and resource management planning and should seek to fortify essential buffer zones and wildlife/connectivity corridors in addition to protected areas. ● <u>Actively engage in and support coordinated transboundary governance of cross-border sensitive ecosystems and areas of high biodiversity value</u>, such as the East Afromontane Hotspot. Such support should include designation and management of wildlife corridors and protected area buffer zones. 	<ul style="list-style-type: none"> ● International Demand for Natural Resources ● Climate Change 	

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<ul style="list-style-type: none"> • Increase oversight and engagement with existing transparency and conservation initiatives for the extractive industries sector. Encourage the GOZ to engage meaningfully with these initiatives. • Promote environmental stewardship and responsibility in the context of maintaining ecosystems services that sustain communities and the nation as key elements of civic behavior education, from early childhood onward. 		
<p>TIER 2: HIGH PRIORITY</p>		
<p>ACTION 5: PROVIDE TECHNICAL ASSISTANCE IN SUPPORT OF SUSTAINABLE LIVELIHOODS IN AND NEAR AREAS OF BIODIVERSITY IMPORTANCE TO ADDRESS FOOD SECURITY, ECONOMIC GROWTH, AND RESOURCE GOVERNANCE.</p>		
<ul style="list-style-type: none"> • Delivery of technical assistance to nurture non-traditional value chains with potential for “green” growth and income generation, including support of sustainable agriculture for high-value crops, to discourage unsustainable resource extraction and reduce poor land use management practices. • Scale agricultural value chains that have positive implications for biodiversity. • Review and evaluate existing biodiversity conservation and sustainable livelihoods projects’ strength and weaknesses and, in coordination with international and local actors, invest in sustainable initiatives that place emphasis on the participation of women and vulnerable groups. • Increase funding to community-based organizations that create sustainable livelihood opportunities (with input from project beneficiaries). • Promote agroforestry by providing technical assistance, equipment, and inputs. Promote community-led forest governance. • Promote sustainable livelihood activities in and around selected PAs. Provide technical assistance to identify and support key value chains. These livelihoods could include the harvesting and processing of non-timber forest products, as well as traditional livelihoods, like small-scale agriculture and/or pastoralism. • Education and behavior change communications focused on the benefits and opportunities provided by increased adoption of agro-forestry techniques, emphasizing multiple uses of forest products and benefits such as soil fertility, water retention, and reduced erosion. • <u>Collaboration between GOZ, civil society, and development partners in the</u> 	<ul style="list-style-type: none"> • Poverty, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth • Institutional and Economic Failures • Climate Change 	<ul style="list-style-type: none"> • Unsustainable Agricultural Practices and Expansion • Mining and Other Extractive Industries • Overharvesting of Wood • Bushmeat Hunting • Climate Change/Drought

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
<p><u>identification, promotion, and training on best management practices for sustainable value chains</u> of comparable economic value to unsustainable activities (e.g., charcoal production, artisanal mining).</p> <ul style="list-style-type: none"> Establish linkages between loss of biomass and the loss of associated ecosystem services. If the economic value of these services could be calculated on a per hectare basis, it enables viewing the full value of forests and woodlands against other land use types (e.g., agriculture). This information would be valuable to guide policy decisions relating to land use and influencing national priorities (Underwood, Hahn and Hollander 2020). 		
<p>ACTION 6: STRENGTHEN CLIMATE CHANGE AND DISASTER RESILIENCE EFFORTS (E.G., REDUCE THE IMPACT OF DROUGHTS).</p>		
<ul style="list-style-type: none"> <u>Improve natural disaster preparedness and response capacity.</u> Ensure communication related to disaster preparedness planning also links to sustainable NRM and biodiversity conservation. Promote climate smart agriculture (e.g., crop varieties adapted to the climate and technologies which increase soil fertility), scaling of Farmer-Managed Natural Regeneration coupled with soil and water conservation measures. Support implementation of climate change adaptation plans. Integrate data on future climates. For example, integration of outputs from global climate models into models of ecosystem services (e.g., hydrological models) or distribution of tree cover (e.g., communal lands). This would indicate which natural resources are most vulnerable and provide linkages to the ecosystem services they provide that can contribute to natural resource planning (Underwood, Hahn and Hollander 2020). Support establishment of community-developed range resource management plans to engage community participation in the development of grazing controls to help enable rangeland recovery from overgrazing. Develop sectoral climate risk profiles to provide technical resources to the Zimbabwean government and its partners in managing climate-related risks throughout the program cycle. 	<ul style="list-style-type: none"> Climate Change Poverty, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth 	<ul style="list-style-type: none"> Climate Change/Drought. Unsustainable Agricultural Practices and Expansion

TABLE 6. ACTIONS NECESSARY, DRIVERS ADDRESSED, AND LINKED THREATS ACCORDING TO TIER OF PRIORITY

ACTIONS NECESSARY	DRIVER(S) ADDRESSED	LINKED THREATS
TIER 3: ADDITIONAL ACTIONS NECESSARY		
ACTION 7: INCREASE ACCESSIBILITY AND AFFORDABILITY OF ALTERNATIVE ENERGY OPTIONS TO CHARCOAL AND WOODFUEL		
<ul style="list-style-type: none"> • Invest in research and initiatives targeting alternative energy sources and scaling existing alternatives (e.g., liquefied natural gas mini-grid/off-grid solar, biogas). • <u>Evaluate financial and policy incentives and tools that could encourage the adoption of energy alternatives or discourage the use of charcoal or wood fuel.</u> Examples include the following: <ul style="list-style-type: none"> ○ Provide microfinancing or subsidies for wood fuel alternatives to reduce financial barriers currently constraining adoption of these alternatives by subsistence farmers and traders. ○ A tax on charcoal for certain industrial/commercial users (a gradient depending on method of production) and use the tax revenues to fund the development of sustainable charcoal production and/or charcoal fuel wood alternatives. This is dependent on government willingness and capacity to enforce changes to the tax regime. • Promote entrepreneurship and research on energy alternatives (e.g., renewable energy or gas, instead of charcoal) and energy-efficient technologies (E.g., cleaner and efficient cook stoves and burning systems) that can increase availability of, and access to, affordable energy in both urban and peri-urban areas. • Upgrade and expand the electricity generation, transmission, and distribution infrastructure to increase access to low-cost, reliable power in urban and peri-urban areas. • Increase investment in and development of mini-grid solar or other forms of distributed energy systems to increase accessibility and availability of electric power, particularly in isolated rural locations. • Explore opportunities to invest/promote fuel efficient cookstoves, with understanding that effective execution requires active monitoring of adoption and proper use (e.g., tracking changes in wood fuel use over time). • Facilitate establishment of woodlots for sustainable fuelwood supply in urban and peri-urban areas. 	<ul style="list-style-type: none"> • Growing Energy Demand • Poverty, Reliance on Unsustainable Livelihoods, Food Insecurity, and Population Growth 	<ul style="list-style-type: none"> • Overharvesting of Wood • Urban Expansion

7. EXTENT TO WHICH THE ACTIONS PROPOSED FOR SUPPORT BY THE AGENCY MEET THE ACTIONS NECESSARY

This section presents the Analysis Team’s findings regarding the “extent to which” the actions proposed or implemented by USAID/Zimbabwe support the “actions necessary” as defined in Section 6. Each sub-section, as shown in Table 7, describes the manner in which current and planned programming contribute to one of the seven defined actions necessary, providing examples within current programming of that contribution or describing opportunities for the Mission to improve upon that contribution through the new CDCS.

TABLE 7. ACTIONS NECESSARY AND EXTENT TO WHICH	
ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY	EXTENT TO WHICH CURRENT MISSION PROGRAMMING CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY
Action 1: Strengthen the Capacity of Government, Civil Society, and Communities to Manage Natural Resources	Through its EG, DG, and HAR portfolios, the Mission is conducting significant work on capacity development with civil society and communities. For instance, a key DG activity is to increase the role of citizen action and influence across regional and national platforms, as well as village councils and local bodies, However, because of US government restrictions, capacity building with the GOZ is limited. Under its HPN portfolio, the Mission distributes long-lasting insecticidal nets as a vector-control intervention and to complement indoor residual spraying to reduce malaria transmission in Zimbabwe. This issue did not emerge as a priority threat in either the stakeholder interviews or the literature review. Most likely this issue is simply poorly understood. USAID/Zimbabwe could examine potential misuse of LLINs as fishing nets, given that bednets are known to be misused throughout Africa.
Action 2: Strengthen Natural Resource and Land Use Governance (Regulation, Enforcement, and Accountability) at the National, Regional, and Local Levels	<p>USAID/Zimbabwe’s 2021-2026 CDCS Strategic Priority #3 “Improving Accountable Governance” aims to address this action. For instance, the Strategic Priority calls for improving oversight of the executive branch, judicial decisions & legal processes; and increasing public interest litigation and media that highlights official misconduct. However, the Mission’s ability to have a significant impact is limited by US government restrictions on working with the GOZ.</p> <p>USAID’s DG activities (currently planned through 2022) could also help address this action with its core activities:</p> <p>I: Advance constitution-driven reforms</p>

TABLE 7. ACTIONS NECESSARY AND EXTENT TO WHICH

ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY	EXTENT TO WHICH CURRENT MISSION PROGRAMMING CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY
	<ul style="list-style-type: none"> 2: Strengthen systems of accountability 3: Increase citizen action and influence at all levels 4: Deepen social cohesion within targeted communities
Action 3: Increase Availability and Quality of Education and Research Initiatives to Address Existing Gaps in Available Biodiversity Data	The Mission is not currently collecting a significant amount of biodiversity data, however, the ANCHORS program through the EG Team and integrated pest management and fall army worm (FAW) work under the FARM (Fostering Agribusiness for Resilient Markets), Amalima Lokho, and Takunda activities offer an opportunity to ramp up data collection efforts (e.g., on pesticide application) The FAW Research activity under DOI might also result in a trove of biodiversity data.
Action 4: Build Capacity Across Local Levels of Government and Communities – in Concert with Devolution Policies – to Support Biodiversity Conservation	<p>USAID/Zimbabwe’s 2021-2026 CDCS Strategic Priority #3 “Improving Accountable Governance” aims to address this action:</p> <ul style="list-style-type: none"> 1) Improve oversight of the executive branch, judicial decisions & legal processes 2) Increase public interest litigation and media that highlights official misconduct 3) Strengthen civil society advocacy 4) Increase capacity of local authorities
Action 5: Provide Technical Assistance in Support of Sustainable Livelihoods in and near Areas of Biodiversity Importance to address Food Security, Economic Growth, and Resource Governance	<p>USAID/Zimbabwe’s 2021-2026 CDCS Strategic Priority #2 “Investing in Zimbabwe’s Youth” could address components of this action. For instance, the Strategic Priority aims to:</p> <ul style="list-style-type: none"> 1) Provide life skills training and livelihoods support to young women 2) Increase access to finance, skills, entrepreneurship, and livelihoods 3) Support youth participation and leadership in agriculture and natural resources management 4) Invest in technical & vocational training for youth and on/off farm livelihood support

TABLE 7. ACTIONS NECESSARY AND EXTENT TO WHICH

ACTIONS NECESSARY TO ACHIEVE CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY	EXTENT TO WHICH CURRENT MISSION PROGRAMMING CONTRIBUTES TO SUSTAINABLE MANAGEMENT AND CONSERVATION OF TROPICAL FORESTS AND BIODIVERSITY
	<p>The Farmer-to-Farmer Program (2018-2023) will also support this activity with its work with, for example, farmer groups and agribusinesses, to facilitate sustainable improvements in food security and agricultural processing, production, and marketing.</p>
<p>Action 6: Strengthen Climate Change and Disaster Resilience Efforts (e.g., Reduce the Impact of Droughts)</p>	<p>USAID/Zimbabwe’s Amalima Loko program (2020-2025) should help address this action, as the program seeks to elevate the livelihoods of more than 67,000 vulnerable households across five districts of Zimbabwe’s Matabeleland North: Binga, Hwagne, Lupane, Nkayi, and Tsholotsho. The program intends to strengthen community and household-level resilience, promote nutrition-sensitive initiatives including a blanket food distribution program, and improve watershed infrastructure and practices that aim to provide long-term foundations for improved resilience and agriculture-based livelihoods.</p>
<p>Action 7: Increase Accessibility and Affordability of Alternative Energy Options to Charcoal and Woodfuel</p>	<p>The Mission is not currently focusing on this Action, however, the ANCHORS program through the EG Team offers an opportunity to pursue renewable energy sources (e.g., solar use in agricultural projects) and woodfuel alternatives (e.g., biomass charcoal).</p>

8. PROGRAMMING RECOMMENDATIONS FOR USAID/ZIMBABWE UNDER THE NEW CDCS

Building upon the Extent to Which analysis (Section 7), the Analysis Team developed the following recommendations for Mission programs and interventions. These recommendations are meant to strengthen the integration of tropical forests and biodiversity conservation in the Mission's CDCS and subsequent programming; consider USAID's development portfolio in the country including USAID's comparative advantage; consider where USAID is likely to have the greatest impact; and consider the involvement (or lack of involvement) of other actors.

The recommendations below are grouped and preceded by a descriptive paragraph, in italics.

*A pervasive problem in Zimbabwe is that of governance and the associated institutional failings that contribute to widespread poverty, food insecurity, and a working environment where these problems have no easy path to resolution. The establishment of **community-based conservancies** and **natural resource models** that work at the local level is a promising means by which this lack of governance can be addressed – by creating mechanisms that devolve land management authority to local people and improve livelihoods. Recommendations that pertain to the creation of **community-based conservancies** and other **NRM models** can accomplish the following:*

- **Foster an inclusive and sustained biodiversity economy with diversified revenue inflows for conservation area management authorities and local communities by promoting sustainable value chains.** A community model that values natural resources can diversify local livelihoods and create social safety nets by reducing overreliance on hunting concessions, extractive activities, and tourism for income. Sustainable value chains can include wildlife breeding (for protein), fish farming, and non-timber forest products (NTFPs). NTFP value chains could include bioprospecting (medicinal plants and herbs), mopane worms, honey, bamboo, chiles, baobab, mongongo nut, marula fruit, bambara nut/nyimo beans, zumbane, herbal tea, masau, bed matting, construction materials (e.g., mopani poles). These value chains need to be developed for domestic and international marketing. This approach will reduce community vulnerabilities to environmental, socioeconomic, and political shocks and stresses. Work on sustainable value chains is already underway in some communities in Save Valley, and, if successful, this approach can be scaled-up.
- **Strengthen governance processes and reduce graft by creating a multi-stakeholder accountability process and grievance redress mechanisms.** For instance, USAID can help design an approach whereby stakeholders (e.g., local governments, Civil Society Organizations (CSOs), Implementing Partners, and private sector firms) working on an activity together monitor each other through a scorecard-type system. This self-governing approach can increase transparency, oversight, and financial accountability among stakeholders (e.g., implementing partners assessing the progress of private entities' work on sustainability targets; private sector review of CSO activity expenditure).
- **Build capacity and develop skills within communities on sustainable management of natural resources, including as viable income-generating ventures.** Specific skills include the development of financial, business management, entrepreneurial, and marketing skills (e.g., help create financial systems to ensure revenues flow directly to communities). Specific support includes small-scale infrastructure development (e.g., irrigation schemes, boreholes, storage facilities).

Capacity and skill development on NRM issues can be combined with work on health (e.g., family planning) and education (e.g., working with youth on the value of biodiversity) activities.

- **Support diversification of conservation financing options and, by creating an environment for investment (e.g., longer periods of tenure/lease), strengthen private-sector engagement and co-management conservation approaches with local communities.** Potential entities for NRM public-private partnerships include banks, mining, and manufacturing companies.
- **Enhance the capacity of the community to reduce human wildlife conflict and ensure communities are the “first line of defense” in combating wildlife crime through monitoring, oversight, and law enforcement initiatives.** Human wildlife conflicts can be better addressed by understanding when and where conflicts occur (e.g., in specific agricultural fields, on the way to school or getting water) and - separately – by establishing corridors for migration along historic routes. Local people can be employed as local rangers and monitors.
- **Consider supporting efforts to initiate CAMPFIRE 2 (i.e., if the European Union gets involved) and support the ongoing devolution process (see Rec 3) which shifts revenue management and access from local government authorities to local communities.** Broaden CAMPFIRE concept to cover natural resources/biodiversity beyond wildlife.
- **Map out clear roles and responsibilities for women, youth, and marginalized communities.** For example, ensure women are active members of bodies that make decisions on extraction, conservation, and economic opportunities related to natural resources (e.g., women-run small businesses). **Also, increase the role of marginalized communities** by promoting work in biodiversity monitoring and oversight for women, tribal communities, youth, and particularly stressed locales (e.g., San community in Tsholotsho, Mid Zambezi Valley (Doma), Chilonga community in Chiredzi, and Tonga in KAZA- Binga)

The current process of devolving government authority to local actors through the National Development Strategy (see Section 4.1) is a critical one. Devolution should allow local people to more directly access benefits from natural resources and thus be more motivated to manage resources sustainably over the long-term. Increasing local power and local control so that communities derive benefits from natural resources will lay a foundation for better biodiversity outcomes in Zimbabwe. Previous efforts to extend the benefits of natural resources to local projects through the CAMPFIRE program fell short of reaching the preponderance of local people it aimed to benefit.

- **Position NRM activities to leverage the implementation of governmental devolution policy currently underway in Zimbabwe**, including long-term land tenure reform and increased momentum for community conservancy model (e.g., deriving benefits).
 - Communicate USAID backing – within the constraints of current USAID engagement protocols with GOZ -- of other effective governmental natural resource and wildlife management policies (e.g., long-term harmonization of laws with the Environmental Management Act and the Water Act).
 - Undertake a Political Economy Analysis to better understand the linkages between corruption and the capture of resources, political will, to assess power across stakeholders and to identify opportunities to positively inform policy and programming that protects biodiversity assets.

- **Provide institutional support and training – with a focus on biodiversity and NRM – that builds capacity for local governments and villages/communities.** For instance, train local people in forest management, business, and leadership; and recruit local experts to manage local community organizations (e.g., community conservancies).

Integrated land-use planning at any scale is lacking in Zimbabwe. Without mechanisms to influence governmental efforts to coordinate across ministries, this objective can primarily be shaped at the local level. Nevertheless, efforts to coordinate NGO initiatives, to influence work in community-based NRM landscapes, and to support corridor and other mapping can contribute to land-use planning.

- **Strengthen efforts to implement conservation landscape planning** by developing land use plans with local communities consistent with larger governmental planning efforts that minimize human-wildlife conflict and address water-resource management, land degradation and deforestation, and agricultural expansion. Such an effort would complement government initiatives to establish corridors and protect National Parks and other Protected Areas.
- **Support work on landscape connectivity mapping** (e.g., wildlife corridors) and efforts to improve dispersal of wildlife species between protected areas. Target areas include corridors connecting Hwange National Park and the Sebugwe region; as well as areas around Mana Pools and the lower Zambezi valley; Save Valley conservancy, Buby Valley (e.g., proposed Biosphere Reserve) and Gonarezhou National Park.

Overharvesting of wood for fuel and for tobacco curing is a significant concern causing widespread loss of forests and species' habitat. Alternative fuel programs for cooking have been proposed, but success has been elusive absent a clear and well-supported national strategy. Such an effort may be beyond the scope of what the Mission can accomplish given its current mandates and constraints. However, renewable energy approaches – particularly within the agricultural sector – could help address this pervasive issue.

- **Promote sustainable and renewable energy use,** particularly in the agricultural sector. Explore the use of briquettes for tobacco curing and rural electricity projects. This recommendation could be integrated into HPN initiatives.

In a systematic evaluation of peer-reviewed evidence for the ability of Nature-based Solutions to provide benefits to water management, Acreman et al. (2021) found a strong relationship between forest cover and sedimentation in downstream water systems. Among 11 studies of deforestation, 9 found that deforestation was associated with an increase in downstream sediment, with sediment yield from a watershed increasing up to four-fold from clearcutting of forests. Based on this relationship, it was suggested that reforestation will be an effective nature-based intervention to reducing sediment in downstream water systems. Sediment reduction from forest cover can occur through reduced erosion of soils from hillslopes, such as from tree cover that increases interception and reduces the erosive power of precipitation and from tree roots that stabilize slopes and reduce rates of landslides and other mass wasting events. Further, the Acreman review found strong support for the ability of reforestation, or forest protection, to reduce flood magnitudes from watersheds. Forest cover can increase infiltration of soils and reduce peak rates of runoff, contributing to reduced erosion from both hillslopes and streambanks (Acreman, et al. 2021).

However, this review also found that forest cover can reduce overall water production from a watershed, largely because trees have greater rates of evapotranspiration than the vegetation they replace, such as shrubs and grasses. This evidence comes from studies of deforestation (in which water yield increased) and reforestation (in

which water yield decreased). The evidence for this relationship is particularly strong with non-native trees or plantations. In South Africa, a major program has focused on removal of non-native and “thirsty” trees from watersheds above water supply reservoirs as a cost-effective intervention to increase water yield. That said, while there is a general negative relationship between forest cover and water yield, there is evidence that loss of native forests reduces low flows (8 of 12 studies involving deforestation of native, or mixed native and non-native forests, resulted in reduced low flows). Thus, the relationship between native forests and water yield may be complicated and context specific. For example, restoration of native forests may result in overall decrease in water yield from a watershed, but an increase in dry season flows (Acreman, et al. 2021).

In Zimbabwe, large-scale efforts to protect watersheds are not well-known. An early greenbelt movement, aimed at reforestation in the Sahel, later included Zimbabwe, but little information is available on its success. Protected areas are important for Harare’s water supply which draws from two lakes: Lake Chivero and Lake Manyame. The vegetation in this area is partially protected by ZimParks as a recreational park. The Lake Manyame Recreation Park is typical Mashonaland highveld, which is retained in its natural state in certain parts of the park and does not occur in other conservation areas in Zimbabwe. Isolated restoration projects were cited during stakeholder interviews.

- **Enhance ecosystem restoration/regeneration** including promoting reforestation (e.g., indigenous tree planting initiatives), agroforestry activities, management of invasive species, and strengthening water resource security through soil and water conservation projects. These activities must focus on costs and benefits as some programs are inherently costly, and the benefits must be commensurate with the investment.

The struggle for adequate income and food is at the root of biodiversity issues in Zimbabwe. As long as widespread poverty exists, natural resources will continue to be used to alleviate hunger and provide income. To that extent that natural resources can be used sustainably and can supplement livelihoods, biodiversity will benefit. Options that incentivize local people to protect ecological resources will benefit not only local people but others – nationally and globally – that benefit from resource protection.

- **Investigate Payment for Ecological Service options** (e.g., community biodiversity/forest concessions, carbon and green water credits, watershed/aquifer protections, reducing emissions from deforestation and forest degradation ++ certification).
- **Strengthen technical assistance on sustainable and climate smart agriculture**, e.g., intensive cultivation of high-value crops such as chile peppers and garlic, movement to water-efficient crops, public-private partnerships for marketing of value chains. Explore options for create value chains for locally adapted cultivars such as sorghum or Bambara groundnut. These efforts can be amplified by working with local or international actors active in this sector (e.g., Zimbabwe Environmental Working Group chaired by the European Union). Support research opportunities to incorporate non-pesticidal pest management measures into agricultural programs, notably for pests that are projected to increase as a result of changing climate.

The protection of biodiversity and tropical forests occurs when biodiversity values are well-understood and supported. Most stakeholders interviewed for this analysis acknowledged that biodiversity is not prioritized in Zimbabwe, in part because it is not well understood. Significant gaps in data exist, and – in cases where data do exist – they are not well disseminated. The long-term value of biodiversity is not appreciated, for many of the reasons discussed above, but also because of a lack of awareness.

- **Support biodiversity data collection, particularly** in terrestrial priorities for conservation (e.g., Lowveld parks and conservancies) and for species beyond megafauna.
- **Mainstream biodiversity and forest conservation concepts** into Mission messaging, outreach programs, and – to the extent feasible - education curricula, e.g., for early grade reading.

As shown in Table 8 below, the recommendations provided above can be organized by Mission technical area. USAID programming is subject to Congressional earmarks, which necessarily inform and at times constrain the opportunities to integrate tropical forests and biodiversity conservation into all technical programming. Recommendations are thus made based upon the Analysis Team’s understanding of any such constraints and framed in a manner practicable for the Mission, understanding that factors beyond the conservation of tropical forests and biodiversity will likewise inform final programming decisions. This Analysis also identified recommendations for USAID consideration that require funding streams beyond those currently available to the mission but would address important threats and drivers of biodiversity loss and merit USAID attention.

Selected recommendations within the table are identified as “high priority.” A high-priority designation reflects the Analysis team’s conclusions that the recommendation 1) will address at least one of the primary drivers to significant threats to biodiversity and conservation; 2) will align with stated Mission objectives or priorities for more participatory governance for a healthier, more prosperous Zimbabwe; and 3) is based upon extensive stakeholder consultation.

Finally, in accordance with the Best Practice Guide, recommendations are organized into two categories: “Readily Actionable” (i.e., short- and medium-term) and “Strategic Opportunity” (i.e., long-term).

TABLE 8. RECOMMENDATIONS BY TECHNICAL OFFICE AND PRIORITY				
RECOMMENDATION	TECHNICAL OFFICE	READILY ACTIONABLE	STRATEGIC OPPORTUNITY	HIGH PRIORITY
Foster an inclusive and sustained biodiversity economy with diversified revenue inflows for conservation area management authorities and local communities by promoting sustainable value chains.	EG	√		√
Strengthen governance processes and reduce graft by creating a multi-stakeholder accountability process and grievance redress mechanisms.	DG	√		√
Build capacity and develop skills within communities on sustainable management of natural resources, including as viable income-generating ventures.	EG, HPN, HAR	√		√
Support diversification of conservation financing options and, by creating an environment for investment, strengthen private-sector engagement and co-management conservation approaches with local communities.	EG, DG	√		√

TABLE 8. RECOMMENDATIONS BY TECHNICAL OFFICE AND PRIORITY

RECOMMENDATION	TECHNICAL OFFICE	READILY ACTIONABLE	STRATEGIC OPPORTUNITY	HIGH PRIORITY
Enhance the capacity of the community to reduce human wildlife conflict and as the “first line of defense” in combating wildlife crime through monitoring, oversight, and law enforcement initiatives.	EG, HAR	√		√
Consider supporting efforts to initiate CAMPFIRE 2 and support the ongoing devolution process.	EG, DG, HAR		√	
Map out clear roles and responsibilities for women, youth, and marginalized communities.	HAR, HPN, DG	√		√
Position NRM activities to leverage the implementation of governmental devolution policy currently underway in Zimbabwe.	EG, DG	√		√
Provide institutional support and training – with a focus on biodiversity and NRM – that builds capacity for local governments and villages/communities.	EG, HAR, HPN	√		√
Strengthen efforts to implement conservation landscape planning by developing land use plans with local communities	EG, DG	√		√
Support work on landscape connectivity mapping (e.g., wildlife corridors) and efforts to improve dispersal of wildlife species between protected areas.	EG	√		√
Promote sustainable and renewable energy use	EG, HAR	√		√
Enhance ecosystem restoration/regeneration	EG		√	√
Investigate Payment for Ecological Service (PES) options	EG		√	
Strengthen technical assistance on sustainable and climate smart agriculture	EG, HPN	√		√
Support biodiversity data collection,	EG, HPN		√	
Mainstream forest conservation and biodiversity concepts	EG, HAR, HPN		√	

ANNEXES

Annex A: References

Annex B: Additional Maps, Graphics and Tables

Annex C: Scope of Work

ANNEX A: REFERENCES

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ANNEX B: ADDITIONAL TABLES

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Mzolo	State Forest	National	672	Designated	1954
Mosi-oa-Tunya / Victoria Falls	World Heritage Site (natural or mixed)	International	68.6	Inscribed	1989
Cleveland Dam	Ramsar Site, Wetland of International Importance	International	10.5	Designated	2013
Mana Pools	Ramsar Site, Wetland of International Importance	International	2200.34	Designated	2013
Tandai	State Forest	National	54.5	Designated	1980
Lake Chivero and Manyame	Ramsar Site, Wetland of International Importance	International	292.6	Designated	2013
Monavale Wetland	Ramsar Site, Wetland of International Importance	International	5.07	Designated	2013
Victoria Falls National Park	Ramsar Site, Wetland of International Importance	International	17.5	Designated	2013
Driefontein Grasslands	Ramsar Site, Wetland of International Importance	International	2011.94	Designated	2013
Nyanga	National Park	National	330	Designated	1950
Mana Pools National Park	Ramsar Site, Wetland of International Importance	International	2200.34	Designated	2013
Kazuma Pan	National Park	National	313	Designated	1975
Kyle	Recreation Park	National	169	Designated	1975
Gonarezhou	National Park	National	5053	Designated	1975
Chizarira	National Park	National	1910	Designated	1975
Matusadona	National Park	National	1407	Designated	1975
Matopos	National Park	National	424	Designated	1926
Ngezi	Recreation Park	National	58	Designated	1975
Sebakwe	Recreation Park	National	26	Designated	1975

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Chete	Safari Area	National	1081	Designated	1975
Mushandike	Sanctuary	National	1290	Designated	1975
Victoria Falls	National Park	National	23.4	Designated	1952
Kavira	State Forest	National	282	Designated	1954
Hwange	National Park	National	14651	Designated	1949
Chirisa	Safari Area	National	1713	Designated	1975
Zambezi	National Park	National	560.1	Designated	1979
Kazuma	State Forest	National	240	Designated	1961
Charara	Safari Area	National	1692.14	Designated	1975
Umfurudzi	Safari Area	National	760	Designated	1976
Chewore	Safari Area	National	3390	Designated	1964
Sapi	Safari Area	National	1180	Designated	1975
Hurungwe	Safari Area	National	2894	Designated	1975
Dande	Safari Area	National	523	Designated	1975
Chegutu	Safari Area	National	445	Designated	1975
Matetsi	Safari Area	National	2955	Designated	1975
Lake Alice	State Forest	National	390	Designated	1961
Mana Pools	National Park	National	2196	Designated	1975
Chimanimani	National Park	National	171.1	Designated	1950
Lake Kariba	Recreation Park	National	2830	Designated	1979
Tuli	Safari Area	National	416	Designated	1975
Darwendale	Recreation Park	National	112	Designated	0
Lake Chivero	Recreation Park	National	61.8	Designated	1975
Bangala	Recreation Park	National	27	Designated	1975
Umzingwane	Recreation Park	National	12.33	Designated	1975
Doma	Safari Area	National	945	Designated	1975

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Chipinge	Safari Area	National	261	Designated	1975
Fuller	State Forest	National	233	Designated	1961
Deka	Safari Area	National	510	Designated	1975
Manjirenji	Recreation Park	National	34	Designated	0
Chesa	State Forest	National	142.5	Designated	1941
Chirinda	State Forest	National	9.5	Designated	1951
Mbembesi	State Forest	National	551	Designated	1941
Gwayi	State Forest	National	1442.3	Designated	1930
Gwampa	State Forest	National	470	Designated	1941
Inseze	State Forest	National	352	Designated	1941
Inseze Extension	State Forest	National	84	Designated	1941
Molo	State Forest	National	29	Designated	1961
Ngamo	State Forest	National	1029	Designated	1930
Sijarira	State Forest	National	256	Designated	1954
Sikumi	State Forest	National	544	Designated	1961
Umgusa	State Forest	National	322	Designated	1961
Sengezane	Wildlife Management Area	National	1.259823	Designated	2002
Mafungabusi	State Forest	National	821	Designated	1958
Mudzongwe	State Forest	National	14.2	Designated	1980
Ungwe	State Forest	National	5.67	Designated	1980
Banti	State Forest	National	22.12	Designated	0
Ngungunyana	State Forest	National	17	Designated	1939
York	State Forest	National	14.55	Designated	0
Martin (i)	State Forest	National	6	Designated	0
Glencoe	State Forest	National	20.5	Designated	0
Tarka	State Forest	National	43.43	Designated	0

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Mudima	State Forest	National	63.53	Designated	0
Stapleford	State Forest	National	246	Designated	1928
Erin	State Forest	National	107.41	Designated	0
Nyangui	State Forest	National	155.02	Designated	0
Malipati	Safari Area	National	154	Designated	1975
Bubiana	Conservancy	National	4.99	Designated	0
Chiredzi River Conservancy	Conservancy	National	2.85	Designated	0
Malilangwe Conservancy	Conservancy	National	1.82	Designated	0
Save Conservancy	Conservancy	National	13.52	Designated	0
Mavuradona	Wilderness Area	National	1.95	Designated	0
Buvuma	Wildlife Management Area	National	0.9540272	Designated	2002
Chapoto	Wildlife Management Area	National	1.237613	Designated	2002
Bambadzi	Wildlife Management Area	National	0.8837589	Designated	2002
Batanai	Wildlife Management Area	National	1.611773	Designated	2002
Chibavahlengwe	Wildlife Management Area	National	2.63819	Designated	2002
Chibwedziva	Wildlife Management Area	National	0.8838531	Designated	2002
Chidobe	Wildlife Management Area	National	0.50947	Designated	2002
Chimukoko	Wildlife Management Area	National	1.406575	Designated	2002
Chinonge	Wildlife Management Area	National	0.8362626	Designated	2002
Chipise	Wildlife Management Area	National	2.963327	Designated	2002
Chiriwo	Wildlife Management Area	National	2.985396	Designated	2002
Chireya 1	Wildlife Management Area	National	3.943131	Designated	2002
Chireya 3	Wildlife Management Area	National	1.656065	Designated	2002
Chiroti/Fuleche	Wildlife Management Area	National	2.869999	Designated	2002
Chisunga	Wildlife Management Area	National	3.129285	Designated	2002
Chitsa	Wildlife Management Area	National	0.3542979	Designated	2002

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Chundu	Wildlife Management Area	National	1.631014	Designated	2002
Chunga	Wildlife Management Area	National	2.419306	Designated	2002
Dite 2	Wildlife Management Area	National	3.690705	Designated	2002
Dobola	Wildlife Management Area	National	2.508355	Designated	2002
Dzidzela	Wildlife Management Area	National	1.091844	Designated	2002
Gairezi Res	Wildlife Management Area	National	0.977633	Designated	2002
Lubimbi	Wildlife Management Area	National	0.5784487	Designated	2002
Gala	Wildlife Management Area	National	0.5449935	Designated	2002
Gatshegatshe	Wildlife Management Area	National	0.5600946	Designated	2002
Gutsa	Wildlife Management Area	National	0.304163	Designated	2002
Halisupi	Wildlife Management Area	National	1.755174	Designated	2002
Hingwe	Wildlife Management Area	National	1.018026	Designated	2002
Huwana	Wildlife Management Area	National	0.7238488	Designated	2002
Huyo	Wildlife Management Area	National	0.2288461	Designated	2002
Hwali	Wildlife Management Area	National	2.644445	Designated	2002
Jambezi	Wildlife Management Area	National	1.035643	Designated	2002
Kabuba	Wildlife Management Area	National	2.346642	Designated	2002
Kachecheti	Wildlife Management Area	National	0.7025607	Designated	2002
Kanyati A	Wildlife Management Area	National	1.482688	Designated	2002
Kanyati B	Wildlife Management Area	National	0.8741716	Designated	2002
Karamba	Wildlife Management Area	National	1.431599	Designated	2002
Kariangwe	Wildlife Management Area	National	0.4530989	Designated	2002
Lubu	Wildlife Management Area	National	2.462727	Designated	2002
Mabale	Wildlife Management Area	National	0.4689442	Designated	2002
Madlambuzi	Wildlife Management Area	National	0.7129949	Designated	2002
Mabhongana	Wildlife Management Area	National	3.998825	Designated	2002

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Machuchuta	Wildlife Management Area	National	2.701388	Designated	2002
Madzivazvido	Wildlife Management Area	National	1.999854	Designated	2002
Mahenye	Wildlife Management Area	National	0.6833807	Designated	2002
Makhulela	Wildlife Management Area	National	1.26355	Designated	2002
Manama	Wildlife Management Area	National	1.536999	Designated	2002
Manjolo	Wildlife Management Area	National	0.5118874	Designated	2002
Manyuseni	Wildlife Management Area	National	0.08370152	Designated	2002
Maose-Xini	Wildlife Management Area	National	3.698669	Designated	2002
Maramani	Wildlife Management Area	National	1.570147	Designated	2002
Masanga	Wildlife Management Area	National	1.237866	Designated	2002
Masiyandima	Wildlife Management Area	National	0.9586739	Designated	2002
Mola B	Wildlife Management Area	National	2.050091	Designated	2002
Musamba Karuma A	Wildlife Management Area	National	1.300454	Designated	2002
Musamba Karuma B	Wildlife Management Area	National	0.3519382	Designated	2002
Mtetengwe 3	Wildlife Management Area	National	1.449912	Designated	2002
Muchesu	Wildlife Management Area	National	0.4434869	Designated	2002
Mukota A	Wildlife Management Area	National	2.489933	Designated	2002
Mukwenya	Wildlife Management Area	National	1.310328	Designated	2002
Mutandahwe	Wildlife Management Area	National	0.8908563	Designated	2002
Muzarabani	Wildlife Management Area	National	0.3110799	Designated	2002
Nabiri A	Wildlife Management Area	National	1.170093	Designated	2002
Nsenga	Wildlife Management Area	National	0.8680432	Designated	2002
Nabiri B	Wildlife Management Area	National	2.181708	Designated	2002
Nabusenga	Wildlife Management Area	National	1.768136	Designated	2002
Ndolwane	Wildlife Management Area	National	0.759372	Designated	2002
Negande	Wildlife Management Area	National	2.525259	Designated	2002

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Nekatambe	Wildlife Management Area	National	1.551682	Designated	2002
Nemananga	Wildlife Management Area	National	0.851833	Designated	2002
Nyamakate	Wildlife Management Area	National	0.3094083	Designated	2002
Nenyunka	Wildlife Management Area	National	2.412279	Designated	2002
Neshangwe	Wildlife Management Area	National	1.937812	Designated	2002
Ngorima A	Wildlife Management Area	National	0.1305558	Designated	2002
Ngorima B	Wildlife Management Area	National	0.1730207	Designated	2002
Nyamakate Village	Wildlife Management Area	National	0.7090176	Designated	2002
Pashu	Wildlife Management Area	National	2.241734	Designated	2002
Saba-Lubanda	Wildlife Management Area	National	1.11129	Designated	2002
Sengwe	Wildlife Management Area	National	3.036072	Designated	2002
Sianzyundu	Wildlife Management Area	National	0.6533037	Designated	2002
Tinde	Wildlife Management Area	National	0.7473657	Designated	2002
Sidinda	Wildlife Management Area	National	2.246669	Designated	2002
Sikalenge	Wildlife Management Area	National	1.92547	Designated	2002
Silonga	Wildlife Management Area	National	0.6636726	Designated	2002
Simangani	Wildlife Management Area	National	1.931997	Designated	2002
Simatelele	Wildlife Management Area	National	0.5638274	Designated	2002
Simchembo	Wildlife Management Area	National	1.386779	Designated	2002
Sinamagonde	Wildlife Management Area	National	3.411647	Designated	2002
Sinampande	Wildlife Management Area	National	0.6135889	Designated	2002
Sinansengwe	Wildlife Management Area	National	1.531665	Designated	2002
Twananani	Wildlife Management Area	National	0.8337499	Designated	2002
Mana Pools National Park, Sapi and Chewore Safari Areas	World Heritage Site (natural or mixed)	International	6766	Inscribed	1984
Sibilobilo	Safari Area	National	22.7	Designated	1979

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Tshabalala	Sanctuary	National	11	Designated	0
Great Zimbabwe	National Monument	National	7.46	Designated	0
Ewanrrig	Botanical Garden	National	2.86	Designated	1975
Vumba	Botanical Reserve	National	0.42	Designated	0
Bunga Forest	Botanical Reserve	National	4.95	Designated	1975
Cecil Kop	Nature Reserve	National	17.4	Designated	0
Chinhoyi Caves	Recreational Park	National	1.2	Designated	1975
Mupfure	Recreational Park	National	127	Designated	0
Rusitu Forest	Botanical Reserve	National	1.5	Designated	0
Mvutu	State Forest	National	21	Designated	0
Panda-Masuie	State Forest	National	355	Designated	1961
Umzibani	State Forest	National	24.71	Designated	1961
Lukunguni River (Hwange-Block A)	Protected Forest	National	52.6	Designated	1966
Sikanda (Hwange-Block B)	Protected Forest	National	24.6	Designated	1968
Nesikwe Forest (Nkayi)	Protected Forest	National	34.6	Designated	1968
Gandangula Forest (Lupane-Block G)	Protected Forest	National	99.2	Designated	1968
Mpindo Block (Tsholotsho)	Protected Forest	National	148.75	Designated	1968
Pumula Block (Tsholotsho-Block O)	Protected Forest	National	248.5	Designated	1970
Chisengu	State Forest	National	62.02	Designated	0
Lionhills	State Forest	National	27.47	Designated	0
Martin (ii)	State Forest	National	44	Designated	0
Mtao	State Forest	National	81.7	Designated	0
Nyambewa	State Forest	National	54.84	Designated	0
Nyamandhovu (Grants, Batley, Franklands)	State Forest	National	75.05	Designated	1980
Manjinji Pan	Sanctuary	National	3	Designated	1975

TABLE 9. PROTECTED AREA STATUS*

NAME	DESIGNATION	TYPE	AREA (Km)	STATUS	YEAR DESIGNATED
Diepfontein	State Forest	National	8.14	Designated	0
National Botanic	Botanical Garden	National	0.67	Designated	1963
Vumba	Botanical Garden	National	2	Designated	1958
Pioneer	Botanical Reserve	National	0.38	Designated	0
Tolo River	Botanical Reserve	National	0.44	Designated	0
South Camp	Botanical Reserve	National	0.26	Designated	0
Sebakwe Acacia Karoo	Botanical Reserve	National	0.6	Designated	0
Sebakwe Mt Acacia	Botanical Reserve	National	0.53	Designated	0
Haroni Forest	Botanical Reserve	National	0.2	Designated	0
Tingwa Raphia Palm	Botanical Reserve	National	2.9	Designated	0
Mazoe A&B	Botanical Reserve	National	0.46	Designated	0
Chisekera Spring	Botanical Reserve	National	0.95	Designated	0
Maware	Botanical Reserve	National	0.34	Designated	0
Sebakwe Dyke	Botanical Reserve	National	1.65	Designated	0
Nyamaneche	Sanctuary	National	24.8	Designated	0
Boulton	Sanctuary	National	1.45	Designated	0
Mbazhe Pan	Sanctuary	National	0.4	Designated	1975
Kavira	Recreational Park	National	0.5	Designated	0
Gwendingwe	State Forest	National	97.28	Designated	1980
Gwetera Res	Wildlife Management Area	National	1.126096	Designated	2002
Gwetera Res	Wildlife Management Area	National	0.3402582	Designated	2002
Mutota	Wildlife Management Area	National	0.4552152	Designated	2002
Mutota	Wildlife Management Area	National	0.5867183	Designated	2002
Middle Zambezi	UNESCO-MAB Biosphere Reserve	International	3604	Designated	2010

Source: UNEP-WCMC (2021). Protected Area Profile for Zimbabwe from the World Database of Protected Areas, May 2021. Available at: www.protectedplanet.net

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
<p>NATIONAL ENVIRONMENTAL POLICY AND STRATEGIES (2009)</p>	<p>Avoid irreversible environmental damage, maintain essential environmental processes and preserve the broad spectrum of biological diversity to sustain the long-term ability of natural resources to meet basic human needs, enhance food security, reduce poverty and improve living standards of Zimbabweans through long-term economic growth and job creation</p>	<ul style="list-style-type: none"> - Integrate environment in all development policies, programs and management plans - Have in place a sound environmental information system - Research and monitoring to assess the effectiveness of measures implemented
<p>NATIONAL ENERGY POLICY</p>	<p>Promote the optimal supply and use of energy for socioeconomic development in a safe, sustainable and environmentally friendly manner</p>	<ul style="list-style-type: none"> -Observe environmental regulations in all power-sector projects - Ensure environmentally friendly extraction methods - Increase use of and investment in renewable energy - Develop incentives for investment in renewable energy, such as subsidies and tax concessions - Support the Forestry Commission to increase the tree-planting rate from 10 million to 20 million trees per year by 2015 and to promote rural fencing using live trees - Support end-user-focused research, and awareness and education programs, to increase the efficiency of fuelwood use - Improve collaboration with stakeholders to enforce existing and proposed regulations to prevent the destruction of natural forests, for instance requiring tobacco growers who make heavy use of fuelwood to establish

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
		<p>woodlots, and levying penalties for the unauthorized cutting of trees</p> <ul style="list-style-type: none"> - Promote the use of alternative heating and cooking fuels such as coal, solar power and biogas in rural households and institutions such as boarding schools and hospitals, and in rural commercial applications such as bakeries, brick molding and tobacco curing
<p>NATIONAL POPULATION POLICY (October 1998)</p> <ul style="list-style-type: none"> - Create enabling conditions for sustainable use of natural resources and growth in tourism - Sustainable use of resources and their preservation for future generations 	<ul style="list-style-type: none"> - Increase awareness of sustainable development, conservation of natural resources and environmental management - Ensure sound management of natural resources and the environment to promote sustainable use natural resources 	<ul style="list-style-type: none"> - Enforce regulations that ensure proper use of natural resources - Enhance community participation in the sustainable use of natural resources - Advocate for changes in the land tenure system and intensify sound land-use plans in order to curb environmental problems - Develop a national water policy and promote proper management of water resources - Enhance sound management of forests, veld, wildlife and protected areas - Intensify awareness campaigns on management of agricultural chemicals, energy production and use, air pollution, noise pollution and working environments - Advocate for alternative sources of energy to reduce dependence on wood for fuel - Make environmental impact assessment mandatory for any

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
		<p>project before it is approved</p> <ul style="list-style-type: none"> – Introduce integrated environmental and natural resources management – Educate Zimbabweans about the need to conserve the environment and involve them in its management – Avoid overusing resources and ensure that future generations also enjoy the benefits of the available natural resources
<p>ZIMBABWE NATIONAL CLIMATE CHANGE RESPONSE STRATEGY (Draft) Mainstream climate change adaptation and mitigation strategies in economic and social development at national and sectoral levels through multi-stakeholder engagement</p>	<ul style="list-style-type: none"> – Mainstream climate change in all key sectors of the economy – Promote resource use efficiency and less carbon-intensive pathways in all economic activities and develop an energy infrastructure that is resilient and not carbon-intensive – Develop climate-proofed and environmentally sustainable transport systems that are less carbon-intensive – Promote sustainable development, management and use of water resources under changing climate conditions – Promote sustainable land-use systems that enhance agricultural production, ensure food security and maintain ecosystem integrity – Develop nationally appropriate mitigation actions as a step towards low-carbon development strategies – Address climate change through evidence-based research, technology development and transfer – Promote and protect health under a 	<p>Sector-specific (natural systems, economic, physical and social infrastructure) strategies identified</p>

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
	<p>changing climate</p> <ul style="list-style-type: none"> – Develop an effective climate change communication and information management system that facilitates access by all stakeholder groups – Strengthen and mainstream climate change in all education curricula – Mainstream gender, HIV and AIDS and other vulnerable groups into all climate change interventions – Develop and maintain an appropriate climate governance framework and institutional mechanisms aimed at coordinating climate change responses 	
<p>LAND REFORM POLICY (The integrated conservation plan for the fast-track land reform program)</p>	<p>Impart environmental awareness and develop a culture of resource management in resettled areas</p>	<ul style="list-style-type: none"> – Integrated land use planning for new schemes in preparation for resettlement – Promote micro-catchments management, including woodland management – Collect baseline information for natural resources inventory maps for monitoring – Form conservation committees – Agro-forestry in newly settled areas – Take advantage of economic and ecological attributes of wildlife production in parts of the country prone to drought – Provide financial resources and technical support for constructing conservation works and

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
<p>WILDLIFE-BASED LAND REFORM POLICY</p>	<p>Maximize livelihood options for resettled farmers, particularly in areas where crop production has limited potential, by ensuring profitable, equitable and sustainable use of wildlife and other resources</p>	<p>rehabilitating degraded areas</p> <ul style="list-style-type: none"> – Ensure more equitable access by Zimbabweans to land and wildlife resources and to the business opportunities that stem from these resources; – Maintain a proportion of land outside protected areas under wildlife production – Promote a diversity of land uses through wildlife production and develop and implement appropriate institutional arrangements from wildlife-based land reform
<p>ZIMBABWE NATIONAL GENDER POLICY (2013-2017) Eradicate gender discrimination and inequalities in all spheres of life and development</p>	<p>Increase gender responsiveness of environmental and natural resources management strategies and in climate change adaptation and mitigation initiatives</p>	<ul style="list-style-type: none"> – Conduct a review of current environment and natural resources management policies and strategies and audit for gender considerations, identify gaps, recommend advocate for the incorporation of gender perspectives – Support initiatives that aim to actualize the constitutional environmental rights – Conduct research to collect gender segregated data that highlight environment challenges and climate change induced inequalities among women and men, and recommend gender responsive strategies – Build the capacity of state and non-state development agencies in gender mainstreaming in environment and climate change

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
		<p>policies, programs and national environmental action plans</p> <ul style="list-style-type: none"> - Contribute to the development and regular reviews of the National Climate Change Policy and Response Strategy, the National Biodiversity Strategy and other related national strategies ensuring they adequately incorporate gender considerations - Support interventions aimed at increased participation of both females and males in the sustainable utilization of natural resources for economic benefits including opportunities for carbon trading - Ensure national level strategies for climate induced disaster management and risk reduction and coping mechanisms are gender responsive
<p>WATER RESOURCES POLICY & STRATEGY (2013)</p>	<p>Promote the sustainable, efficient and integrated utilization of water resources for the benefit of all Zimbabweans</p>	<ul style="list-style-type: none"> - Promote equal access to water for all - Promote stakeholder participation and involvement in decision making for water sector - Promote integrates approach to land and water management - Promote the utilization of water resources in an economically efficient manner - Put in place strategies that will promote the production of accurate water data on water use and demand for both surface and

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
		<p>ground water</p> <ul style="list-style-type: none"> - Promote private sector financing in water sector as well as improve opportunities for self-financing and amelioration of public sector financing - Promote integration of sector and regional water policies
ZimAsset 2013-2018	Achieve sustainable development and social equity anchored in indigenization, empowerment and employment creation, which will be largely driven by the judicious exploitation Zimbabwe's abundant human and natural resources	<ul style="list-style-type: none"> -Improve agricultural infrastructure to mitigate against drought through rehabilitation and expansion of irrigation projects and increased construction of dams - Enact legislation to effectively manage the environment - Formulate a national climate change policy - Enhance the capacity of the ZNPWA to combat poaching - Institute methods to increase wildlife species, flora and fauna - Update reports of the ecosystem and its preservation
ZIMBABWE MINERALS POLICY (draft March 2013) Equitable and optimal exploitation of Zimbabwe's mineral resources to underpin broad-based sustainable growth and socioeconomic development	A sustainable and well-governed mining sector that effectively garners and deploys resource rents and that is safe, healthy, ethnically and gender-inclusive, environmentally friendly, socially responsible and appreciated by surrounding communities	<ul style="list-style-type: none"> -Enhance the participation of indigenous Zimbabweans in mining and related linkage industries and facilitate equitable access to the sector by all Zimbabweans with the requisite capabilities, irrespective of gender or ethnicity - Minimize adverse social conditions and environmental degradation due to mining

TABLE 10. ADDITIONAL NATIONAL POLICIES, STRATEGIES AND COMMITMENTS RELATED TO BIODIVERSITY AND ENVIRONMENTAL ISSUES

POLICY	OBJECTIVES	STRATEGIES
		<p>activities and enhance the health and safety regime for workers in the industry</p> <ul style="list-style-type: none"> – Support sustainable artisanal and small-scale mining activities to create employment, generate income and help reduce poverty in the rural areas – Ensure consultation among all stakeholders and affected communities about exploration, mining and the aftermath of mine closures – Establish effective administration and management of the mineral sector – Ensure significant mineral operations are permitted only when an environment and social impact assessment has been conducted, evaluated and approved by the government; plans for managing environmental and social impacts must be incorporated into the assessment reports

TABLE 11. COMMON AND SCIENTIFIC NAMES AND STATUS OF SPECIES CITED IN THE ANALYSIS

COMMON NAME	SCIENTIFIC NAME
African (savanna) elephant	<i>Loxodonta africana</i>
African teak (or Zambezi teak see below)	<i>Baikiaea plurijuga</i>
African wild dog (Painted Dog)	<i>Lycaon pictus</i>
Antelope	<i>Bovidae</i>
Bananas	<i>Musa sp.</i>
Baobab	<i>Adansonia digitata</i>
Birthwort	<i>Aristolochiaceae</i>
Black poui	<i>Jacaranda mimosifolia</i>
Black rhinoceros	<i>Diceros bicornis</i>

TABLE 11. COMMON AND SCIENTIFIC NAMES AND STATUS OF SPECIES CITED IN THE ANALYSIS

Bradfields hornbill	<i>Tockus bradfieldi</i>
Bushwillows	<i>Combretum sp.</i>
Buzi grunter	<i>Amarginops hildae</i>
Carp (African carp)	<i>Labeo baldasseronii</i>
Casava	<i>Manihot esculenta</i>
Chicken	<i>Gallus domesticus</i>
Citrus	<i>Rutaceae</i>
Cotton	<i>Gossypium hirsutum</i>
Crocodile	<i>Crocodylinae</i>
Cypress	<i>Cupressus</i>
Eucalyptus	<i>Eucalyptus globulus</i>
Ferns	<i>Tracheophyta sp.</i>
Fish owl	<i>Bubo blakistoni</i>
Giraffe	<i>Giraffa camelopardalis</i>
Goat	<i>Capra aegagrus hircus</i>
Gorongosa kneria	<i>Parakneria mossambica</i>
Grevy's zebra	<i>Equus grevyi</i>
Grey crowned crane	<i>Balearica regulorum</i>
Gum tree	<i>Eucalyptus globulus</i>
Hippos	<i>Hippopotamus amphibius</i>
Hooded vulture	<i>Necrosyrtes monachus</i>
Hyena	<i>Hyaena sp.</i>
Jumping cholla	<i>Opuntia fulgida</i>
Kapenta	<i>Limnothrissa miodon</i>
Karibaweed	<i>Salvinia molesta</i>
Largemouth bass	<i>Micropterus salmoides</i>
Leadwood	<i>Combretum imberbe</i>
Legumes	<i>Leguminosae or Fabaceae</i>
Leopard	<i>Panthera pardus</i>
Lion	<i>Panthera leo</i>
Mahogany	<i>Khaya sp.</i>
Maize	<i>Zea mays</i>
Marsh harrier	<i>Circus aeruginosus</i>
Marshall's pygmy chameleon	<i>Rhampholeon marshalli</i>
Mchibi	<i>Guibourtia coleosperma</i>
Mnondo tree (also munondo)	<i>Julbernardia globiflora</i>
Mopane tree	<i>Colophospermum mopane</i>
Moss	<i>Bryophyta</i>
Msasa	<i>Brachystegia spiciformis</i>
Mukwa	<i>Pterocarpus angolensis</i>
Nile Cabbage	<i>Pistia stratiotes</i>
Nile tilapia	<i>Oreochromis niloticus</i>

TABLE 11. COMMON AND SCIENTIFIC NAMES AND STATUS OF SPECIES CITED IN THE ANALYSIS

Nyala	<i>Tragelaphus angasii</i>
Nyanga River Frog	<i>Amietia inyangae</i>
Orange	<i>Citrus sinensis</i>
Orchid	Orchidaceae
Pangolin	<i>Phataginus sp.</i> or <i>Smutsia sp.</i>
Pelican	<i>Pelecanus sp.</i>
Pine	<i>Pinus</i>
Plains zebra	<i>Equus quagga</i>
Plover	Charadriinae
Pungwe chiselmouth	<i>Varicorhinus pungweensis</i>
Red claw crayfish	<i>Cherax quadricarinatus</i>
Sable antelope	<i>Hippotragus niger</i>
Secretary bird	<i>Sagittarius serpentarius</i>
Stork	Ciconiidae
Strawberry guava	<i>Psidium cattleianum</i>
Sugar cane	<i>Saccharum officinarum</i>
Thornbush	<i>Acacia sp.</i> and <i>Vachelia sp.</i>
Tobacco	<i>Nicotiana tabacum</i>
Water hyacinth	<i>Eichhornia crassipes</i>
Wattle	<i>Acacia pycnantha</i>
Wattled crane	<i>Bugeranus carunculatus</i>
White backed vulture	<i>Gyps africanus</i>
White cedar	<i>Thuja occidentalis</i>
White headed vulture	<i>Trigonoceps occipitalis</i>
White rhinoceros	<i>Ceratotherium simum</i>
White seringa	<i>Kirkia acuminata</i>
White winged flufftail	<i>Sarothrura ayresi</i>
Wild sage	<i>Lantana camara</i>
Wildebeest	<i>Connochaetes sp.</i>
Wooden banana	<i>Entandrophragma caudatum</i>
Zambezi teak	<i>Baikiaea plurijuga</i>
Zebrawood	<i>Microberlinia brazzavillensis</i>

ANNEX C: SCOPE OF WORK

FAA 118/119 ANALYSIS SCOPE OF WORK Zimbabwe

Note that this SOW has been tailored to account for the current covid-19 Pandemic; remote, desk-based work will occur without dedicated field visits and in-person stakeholder consultations.

I. BACKGROUND

As part of the documentation for the 2021-2026 Country Development Cooperation Strategy (CDCS), USAID Zimbabwe is required by Sections 118 and 119 of the Foreign Assistance Act (FAA), as amended, to prepare an analysis of tropical forests and biodiversity in Zimbabwe.

By mandating FAA 118/119 analysis (hereafter referred to as “the analysis”), the U.S. Congress recognizes the fundamental role that tropical forest and biodiversity play in supporting countries as they progress along the journey to self-reliance. The analysis will examine the country-level forest and biodiversity conservation needs and the extent to which the mission is currently addressing the identified needs for forest and biodiversity conservation. The report recommendations will help the mission identify ways to strengthen host country commitment and capacity to biodiversity conservation.

I.1 SUMMARY OF RELEVANT PARTS OF FAA SECTIONS 118 AND 119

FAA Sections 118 and 119, as amended, require that USAID missions address the following:

I) FAA Sec 118 Tropical Forests

- (e) COUNTRY ANALYSIS REQUIREMENTS. Each country development strategy, statement, or other country plan prepared by the Agency for International Development shall include an analysis of:
- 1) The actions necessary in that country to achieve conservation and sustainable management of tropical forests, and
 - 2) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

2) FAA Sec 119 Endangered Species

(d) COUNTRY ANALYSIS REQUIREMENTS. Each country development strategy, statement, or other country plan prepared by the Agency for International Development shall include an analysis of:

- 1) The actions necessary in that country to conserve biological diversity, and
- 2) The extent to which the actions proposed for support by the Agency meet the needs thus identified.

The FAA 118/119 analysis for Zimbabwe must adequately respond to the two questions for country strategies, also known as “actions necessary” and “extent to which.”

1.2 PURPOSE

The primary purpose of this task is to conduct an analysis of tropical forest and biodiversity in compliance with Sections 118 and 119 of the FAA of 1961, as amended, and [ADS guidelines](#). The analysis will inform USAID Zimbabwe in the development and implementation of its CDCS. USAID’s approach to development requires that the Agency examine cross-sector linkages and opportunities to ensure a robust development hypothesis. Biodiversity conservation is a critical component in achieving self-reliance and should be considered in mission strategic approaches to improve development outcomes. The analysis therefore can **define opportunities to integrate tropical forest and biodiversity conservation into priority development sectors to support the journey to self-reliance.**

While the analysis should not be used as a climate-risk assessment, climate change is a global concern, and, as such, the analysis will evaluate the threat to the country’s tropical forest and biodiversity from climate change. The analysis team should review mission reports on climate change:

1. USAID Zimbabwe Climate risk assessment
2. FARM Activity IEE Climate risk report
3. Health IEE Climate risk report
4. Resilience Anchors Climate Change Matrix (when completed)

The analysis team should also review other sources of climate information available such as the World Bank Climate Change Knowledge Portal, the United Nations Climate Change website, and the Zimbabwe Climate Change National Adaptation Plan.

The analysis will identify new developments that should be taken into consideration at a programmatic level. Zimbabwe is significantly vulnerable to current and projected impacts of climate change. Sixty seven percent of the population live in the rural areas and depend on natural resources for their livelihoods. The World Bank estimates that 66.5 percent of the Zimbabwean workforce is in the Agriculture sector. The agriculture sector is important as it relies on natural resources as inputs in the production cycle and the status of the natural resources is valuable for agricultural productivity. Agricultural production can also lead to unsustainable depletion of natural resources. Any conservation work in Zimbabwe must consider human wildlife conflict and dynamics.

I.3 MISSION PROGRAM

Zimbabwe’s CDCS goal is “*Inclusive, accountable governance and a healthy, engaged citizenry drive social, political, and economic development with equal opportunity for all*”. To reach this goal the Mission works on three development objectives as shown in the results framework below.



The mission is organized into four offices: Humanitarian Assistance and Resilience office, Economic Growth office, Health office, and the Democracy and Governance office. Attached to this Scope of Work (SOW) is the current CDCS and Project Appraisal documents (PADS) for the three development objectives.

Below is a brief description of the Mission ‘s work across the sectors:

HEALTH

USAID investment in Zimbabwe supports a broad portfolio of health programs that provide treatment for and prevention of diseases such as HIV, tuberculosis, and malaria and help make integrated reproductive, maternal, and child health care services more accessible to families.

Through the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR), USAID helps to reduce illness and death caused by the HIV epidemic, especially among women and children. In addition, the U.S. President’s Malaria Initiative supports Zimbabwe’s national malaria program by providing bed nets, spraying to eliminate mosquitoes, and assistance in diagnosis and treatment to combat malaria.

AGRICULTURE AND FOOD SECURITY

The U.S. Government is the largest donor of humanitarian assistance in Zimbabwe, assisting more than one million people who are food insecure. Through USAID’s Office of Food for Peace, USAID provides emergency support that saves lives and alleviates suffering. USAID efforts help Zimbabwe progress from assistance dependence to sustainable development and greater long-term food security. We reduce poverty and address the underlying causes of food insecurity and malnutrition for vulnerable populations to improve resilience and household food security. The Feed the Future initiative helps over 32,000

smallholder farmers each year increase agricultural productivity, rural employment, and household incomes through improved agricultural practices and strengthened commercial market links.

DEMOCRACY AND GOVERNANCE

The Mission promotes democratic governance by supporting Zimbabwean efforts to improve government's accountability, inclusiveness, and responsiveness to citizens' needs. USAID strengthens accountability systems by assisting Parliament to increase its independence and effectiveness, by improving inclusive electoral processes to better reflect citizen voices, by expanding access to information, and by activating mechanisms for citizen advocacy and oversight.

ENVIRONMENT AND WILDLIFE

Through a regional environmental program, USAID works with communities in the Limpopo River Basin to improve management of natural resources and increase access to safe drinking water and sanitation services. USAID is reducing wildlife crime across southern Africa by countering poaching and illegal wildlife trade in national parks and conservancies. These programs promote capacity building, improve accountability within conservation areas, and develop community incentives to support combating wildlife crime.

2. STATEMENT OF WORK

To achieve the above-stated purpose, the analysis team, under the direction of the Team Leader, will proceed as described in this section. As described herein, the analysis is based on synthesis and analysis of existing information, coupled with key stakeholder consultations. The analysis will not generate original primary data.

The research team will synthesize and analyze existing information, and then hold selected consultations with relevant stakeholders as facilitated by USAID/Zimbabwe, and where secondary data are not otherwise available.

The research team will evaluate existing documents to synthesize the status of tropical forests and biodiversity in Zimbabwe. Where relevant and when available, recent (within 3-5 years) analysis of key information (e.g., on the status of tropical forests and freshwater biodiversity) shall be directly referenced in this analysis (e.g., via link or excerpt), rather than integrated into updated content. The focus of all activities undertaken will be twofold:

- A) Identify actions necessary to conserve tropical forests and biodiversity and the extent to which the mission meets the actions necessary, and
- B) Based upon the identified Actions Necessary and subsequent Extent to Which Analysis, the analysis will develop recommendations for additional research or analyses the Mission could undertake or support to address identified data gaps or information needs.

The stakeholder consultations will occur in two phases:

- Phase I stakeholder consultations: Interview and collect information from USAID staff and Implementing Partners that are working on recent or active USAID projects in Zimbabwe.

- **Phase 2 stakeholder consultations:** Interview and collect information from Multilateral donors working in Zimbabwe, as well as Zimbabwean Government representatives (e.g., Ministries).

The purpose of this phased stakeholder approach is to first gather and learn about a broad sense of the biodiversity and forestry issues from USAID actors in Zimbabwe, and then – once the direction of findings and recommendations are coalescing - focus the effort on additional parties, e.g., governmental representatives and donors.

If feasible, a local Subject Matter Expert (SME) will support engagement with key stakeholder consultations. A final determination regarding the role and tasking of any in-country/regional SME will be determined during the work planning process.

2.1 DESK-BASED DATA COLLECTION AND ANALYSIS

Gather and begin to analyze existing information to identify tropical forest and biodiversity status, key biodiversity issues, stakeholders, policy and institutional frameworks and gaps in the available information. Reports and other documentation to be reviewed include previous I18/I19 analyses, current CDCS and mission project documents, information available online (websites of government ministries) on biodiversity conservation (and tropical forest conservation), project reports and evaluations, any Government of Zimbabwe (GoZ) biodiversity strategies and action plans, and reports on the national state of the environment.

2.2 PLANNING AND LOGISTICAL PREPARATIONS

Note: The activities described in this Section may occur prior to, or in parallel with, activities described in Section 2.1.1.

Given the COVID 19 pandemic, field work and travel are restricted. Although the travel protocols keep changing, the Mission envisages this to be a virtual analysis with no international or in country intercity travel. All interviews and meetings are expected to be conducted virtually.

1. **Organize bi-weekly planning meetings with the mission.** The team should plan virtual bi-weekly calls with the activity manager ahead of data collection and analysis to support planning key informants, work plan development, key informant interview protocols, and political or other sensitivities. See section 2.2 for further details and topics for the meetings.
1. **Plan key informant interviews.** In coordination with the mission, the team should begin planning key informant interviews based on the mission’s recommendations and the team’s preliminary review of key topics and information gaps. Key Informant interviews supplement information gathered from consultations, literature review and other second-hand sources.
3. **Develop and submit draft work plan.** Fourteen days (two weeks) after the start of the period of performance, the consultant will submit a draft work plan (Deliverable I). The draft work plan will include a schedule of tasks and milestones, assessment methods, and a brief discussion of information gaps. The draft work plan will also include a preliminary:

- a. List of the type of information to be obtained through further desk research and through consultations; and
 - b. Mapping of key people to engage throughout the analysis process. This may include US-based (predominantly Washington D.C.) stakeholders; mission staff, including the program office, all sector technical staff;; implementing partners; and other key in-country stakeholders (e.g., organizations, government bodies, the private sector and individuals knowledgeable about and/or implementing projects on environment, biodiversity and tropical forest conservation and other sectors relevant to tropical forest and biodiversity conservation, such as agriculture, economic growth, health, climate change and governance).
 - c. Key informant interview guides to be used for stakeholder consultations.
 - d. Report outline based on the outline attached to the SOW (refer to Annex B: Analysis Report Annotated Outline in the FAA 118/119 Best Practices Guide), with differences noted and explained.
 - e. Schedule for written progress reports to, or calls with, the activity manager starting on 7th day and bi-weekly thereafter during the pre-field and field segments. If calls are chosen, they will be documented with written call notes provided to the USAID Activity Manager.
4. **Revise work plan.** Following receipt of mission comments and suggestions on the draft work plan, the team will revise the work plan and submit a revised version within two (2) weeks.

Note: Due to COVID 19 regulations, no in-country physical site visits are planned for under this scope of work.

2.3 MISSION AND FIELD CONSULTATIONS AND SITE VISITS

Note: see section 5 “Role of USAID Mission” for role of the USAID activity manager in supporting the in-country program described in this section.

After approval of the workplan, in coordination with the activity manager, the analysis team will:

1. **Conduct virtual in-brief meetings** with the Program office, technical teams, mission environmental compliance points of contact, and the Front office to:
 - Orient the attendees to the overarching objective of the 118/119 analysis, the methodology to be used (i.e., approach the analysis team will take to conduct the analysis and recommendations for potential biodiversity linkages with other sectors), and the agreed upon itinerary per the approved work plan. Ideally this will have already been circulated within the mission prior to the team’s arrival in country.
 - Review with the mission the approach to the assignment and learn specific mission areas of interest or concerns regarding the planned itinerary and consultations.

- Learn of any sensitivities related to the exercise (e.g., political constraints, mission challenges in working with the host country government or other generalized in-country implementation challenges) that could refine the analysis team’s consultations and strategic or programming recommendations (i.e., the potential for raising expectations and the need to be clear about the purpose of the analysis).
 - Identify any additional organizations to be contacted, including advice and protocol on approaching USAID partners and host country organizations with respect to the assignment.
2. **Meet virtually with the program office at USAID to:**
 - Understand the mission’s planned timeline for new CDCS development.
 - Gain an understanding of the status of the new CDCS development/results framework and anticipated changes to overarching strategic goals and/or development objectives, to the extent they are known at the time of fieldwork.
 3. **Meet (separately, virtually) with all mission technical teams to:**
 - Understand current programming (geographic areas of focus, earmarks and related mandates or constraints) and the ways in which it may have supported or contributed to actions necessary to conserve forests and biodiversity.
 - Learn about planned or potential future programming or strategic orientation.
 4. **Virtually meet with stakeholders identified in the work plan.**
 - Phase 1 stakeholder consultations: Interview and collect information from USAID staff and Implementing Partners that are working on recent or active USAID projects in Zimbabwe.
 - Phase 2 stakeholder consultations: Interview and collect information from Multilateral donors working in Zimbabwe, as well as Zimbabwean Government representatives (e.g., Ministries).
 5. **Conduct exit briefing:** Prior to departure, conduct an exit briefing with the mission, including mission management, program office and all technical teams, to provide them with an overview of the analysis and preliminary report findings (Deliverable 2).

2.4 PREPARATION OF THE FAA | 18/19 ANALYSIS

1. **Prepare and submit an initial set of findings** (Deliverable 2). The team will analyze the information gathered and prepare an overview of the analysis and preliminary report findings. This deliverable will help facilitate work with the USAID Activity Manager to ground truth and validate preliminary findings, ensuring the team is on the right track before collecting additional data granularity for the draft report.
2. **Prepare and submit draft report** (Deliverable 3). The analysis team will analyze the information gathered and will prepare a draft analysis report in accordance with the outline

attached to the SOW and responsive to the legislative requirements listed in Section 1.1 above. The report will:

- a. Follow the outline and include the information recommended in Annex B of the SOW.
 - b. Be between 40-60 pages (excluding annexes) and submitted for review by USAID.
 - c. Copy edited, formatted and comply with USAID branding requirements
3. **Submit revised report** (Deliverable 4). The mission review period for draft reports will be 15 days. The mission should send the analysis report to the relevant regional bureau and pillar bureau staff in Washington for their review and concurrence.

Following receipt of USAID comments on the draft report, the analysis team will prepare and submit a final analysis within 15 days that incorporates USAID comments.

3. SCHEDULE AND LOGISTICS

The assignment is expected to last approximately four months from the date of contract signing to submission of the final deliverable. This includes 3 weeks of planning and data collection and analysis, 2 weeks to prepare a preliminary set of findings, 3 weeks to produce the draft report, 2 weeks for USAID review of the draft report, and 2 weeks to produce the final report.

Table 1: Weekly activities and milestones

Week	Activity/Milestone
Week 1	Kick-Off Meeting Familiarization with USAID Zimbabwe program and country context
Week 2	Draft Workplan submitted to USAID
Weeks 3 - 4	<ul style="list-style-type: none"> • Secondary data review and research • Inception meeting with USAID Activity Manager and USAID core team • Meetings with USAID front office, program office and technical teams • Initiate virtual stakeholder consultations
Week 5	Submission of Preliminary Findings
Week 6	Continue virtual consultations
Weeks 8 - 9	Report writing
Week 10	Submission of Draft Report
Weeks 11–12	USAID review of Draft Report, and submission of comments
Week 13	Submission of Final Report Revision of draft report
Week 16	USAID Approval of Final Report

4. DELIVERABLES

The following are the deliverables for this task:

Deliverable 1. Draft work plan and schedule submitted within 14 working days of the team lead's period of performance. The work plan will address all elements specified in 2.1.

Deliverable 2. Exit Briefing and initial set of findings submitted 20 working days after work plan approval. The team will analyze the information gathered and prepare an overview of the analysis and preliminary report findings.

Deliverable 3. Draft FAA 118/119 analysis report, conforming to all requirements specified in section 2.4 submitted 20 working days after the initial desk review and/or key informant interviews.

Deliverable 4. Final report incorporating all comments, conforming to all requirements specified in section 2.4 submitted within 15 days of the receipt of all USAID review comments on the draft analysis.

5. ROLE OF THE USAID ZIMBABWE MISSION

USAID acknowledges that substantial mission engagement is required in support of the analysis team. To this end, the mission is responsible for arranging the following:

- In-briefing meetings with technical offices, including notifying relevant mission offices (as elaborated Section in 2.1.2, above) and ensuring their direct participation. When key offices are not able to participate, the mission will look to include appropriate alternatives that may participate on their behalf.
- Time for an exit briefing with the mission - including mission management, program office and all technical teams - to provide them with an overview of the analysis and preliminary report findings.
- Separate, scheduled meetings with the front and program office.

Such support includes providing the analysis team with the following:

- A list of key USAID documents (mission wide activity descriptions, reports and evaluations) to review with links or copies of the documents;
- A list of USAID programs for each technical team with brief descriptions of technical remit, A/COR (and contact info), implementing partner (and key point of contact) and maps, ideally a country map showing the geographic location of all programs;
- A list of key and/or recommended stakeholders (with contact information);
- Assistance to the team in making initial contact to arrange interviews, particularly to host country government stakeholders for whom USAID mission outreach is often required;

- Preparation of letters of introduction, as needed;
- A list of relevant donor projects as available; and
- Review and feedback on the preliminary findings and draft report.

To ensure continued coordination with the mission over the course of the in-country work, the analysis team will provide bi-weekly progress reports to the activity manager, which discuss progress, challenges, issues and key findings to-date. These may be submitted as written memos or conducted by phone with summary notes subsequently provided, as determined by mission and analysis team.

6. STAFFING AND ESTIMATED EFFORT

The analysis team shall include a Team Leader, with the following qualifications:

- Post-graduate qualifications (master's level degree or higher) in biology, ecology, zoology, forestry, ecosystem conservation, political economy, political ecology, environmental policy, environmental planning, or a closely related field;
- Knowledge of USAID's strategic planning process both broadly and as related to tropical forests and biodiversity;
- Expertise in assessing environmental threats;
- Experience in Africa and Zimbabwe.
- Experience coordinating analyses and leading teams;
- Exceptional organizational, analytical, writing and presentation skills; and
- Fluent in English and preferably the language spoken in the analysis country.

Including Team Leader, the exact team composition shall be proposed by the consultant for approval by the mission and should ensure appropriate coverage across the below technical areas, tailored to the types of programming and environmental conditions prevalent in the specific country or region of focus. Inclusion of at least a local expert is required.

- Post-graduate qualifications (master's level degree or higher) in biology, ecology, zoology, forestry, ecosystem conservation
- Agricultural, governance, health or other non-environment sector specialist who will focus on linkages between tropical forests, biodiversity and other key technical sectors; and
- Aquatic resources specialist and, if in a marine environment, one with marine expertise.
- Environmental political economist, or political ecologist, that understands the human dimensions of conservation and natural resources management and diverse conservation and management problems including, but not limited to, water, governance, fisheries management, wildlife management, agriculture, economic growth, extractive industries, protected areas, and the scale of the issue, from local, to regional to global.
- GIS expertise or access to GIS expertise to help identify, use and analyze geospatial data and maps.

Note: Where the consultant is a firm, cost-effective utilization of home office staff, including junior staff, for logistics, research/analysis/writing and report production support are expected.